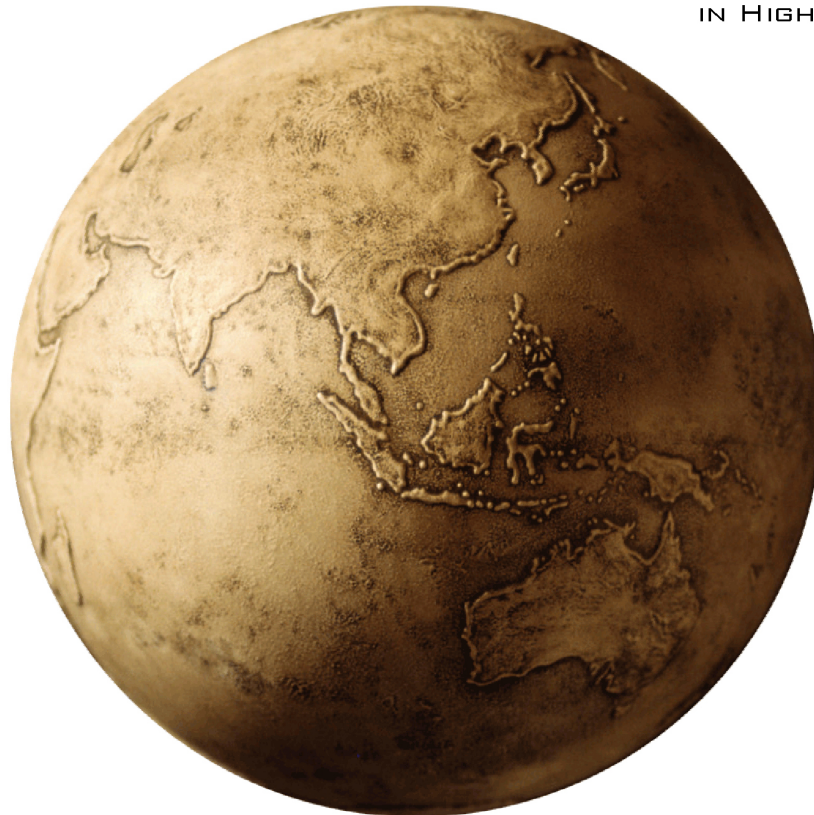International Journal of

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Research Articles

Instructional Articles

Taiwanese University Students' Perceptions Toward Native and Non-Native English-Speaking Teachers in EFL Contexts

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English has evolved into the most widely learned and internationally used language because for the increasing numbers of learners in the globalization process. With the growing demand of English education, the competencies of English teachers as Native English-Speaking Teachers (NESTs) and Non-Native English-Speaking Teachers (NNESTs) have become a significant matter of discussion. The purpose of this study was to investigate Taiwanese English as a foreign language (EFL) students' perceptions and preferences toward NESTs and NNESTs who hold a degree from a country where English is the dominant language through addressing the differences in their English instruction. This qualitative study consisted of 20 participants. Two open-ended questions were investigated and analyzed. The findings revealed that the participants held an overall preference for NESTs over NNESTs; nevertheless, they believed both NESTs and NNESTs offered strengths and weaknesses in their English instruction. The characteristics that were perceived to be disadvantages of one group appeared to be advantages of the other. For example, NESTs were considered more difficult to communicate with by the participants, while NNESTs were believed to have limited English proficiency.

In the 21st century, English is no doubt the most commonly spoken language (Foley, 2006; Jeon & Lee, 2006). As a global language, English has attracted a dramatic number of people to learn English as their second or foreign language during the past several decades (Block, 2002; Crystal, 2003; Holliday, 2005; Nunan, 2001). According to World Languages and Cultures (2010), the importance of learning the English language in the global market include: (a) increasing global understanding, (b) improving employment potential, (c) improving chances for entry into colleges or graduate schools, (d) expanding study abroad options, and (e) increasing the understanding of another culture. However, the next question that springs to mind is: Do NESTs really perform better than NNESTs in English Language Teaching (ELT)? Phillipson (1992) introduced the phrase "native speaker fallacy," which Mahboob (2005) defined as the "blind acceptance of native speaker norm in English language teaching" (p. 82) to deny the mystery of the ideal teacher of English as a native speaker. Also, Medgyes (1996) questioned the claim, "the more proficient in English, the more efficient in the classroom" (p. 40), since successful language instruction is also influenced by other variables such as experience, age, gender, personality, enthusiasm and training. Based on these aforementioned studies in this paragraph, one should not make a conclusion that NESTs are better English instructors than NNESTs in ELT simply because NESTs have English as their mother tongue.

However, not much research has been completed to evaluate the process and output of language teaching by NESTs and NNESTs from EFL students' points of view. The aforementioned studies have overlooked the fact that the group of NNESTs, in fact, can be divided into two subgroups: NNESTs who hold a degree from a country where English is the dominant language and NNESTs who do not hold a degree from a country where English is the dominant language. This study, therefore, synthesized the above knowledge gaps and aimed to provide a comparative investigation to Taiwanese EFL university students' perceptions and preferences toward NESTs and NNESTs who hold a degree from a country where English is the dominant language by addressing the differences of their EFL teaching. The positive or negative experiences of those students while learning from NESTs and NNESTs were also examined in the study.

Literature Review

Native vs. Non-native English speakers. Modiano (1999) indicates that the ability to use English in an appropriate and effective way illustrates whether or not someone is proficient in speaking English. In other words, "nativeness should not be related with birth, because birth does not determine proficiency in speaking English" (Al-Omrani, 2008, p. 27). Al-Omrani (2008) notes five features that could determine whether someone is a native English speaker or not (p. 28):

- The linguistic environment of the speaker's formative years.
- The status of English in his/her home country.
- The length of exposure to English.
- His/her age of acquisition.
- His/her cultural identity.

As the English language expands all around the world, the term "nativeness" is actively discussed by researchers. In general, it delineates "who is a native speaker of English and who is not" (Al-Omrani, 2008, p. 25). According to Braine (1999), Ellis (2002), and

Mahboob (2004), there is no precise definition for "native speaker," because people cannot empirically define what a native speaker is. In this study, the researcher referred to English teachers who acquired English as a first language and spoke it as a mother tongue as native English-speaking teachers (NESTs), while English teachers who spoke or acquired English as a second or foreign language were referred to as non-native English-speaking teachers (NNESTs).

The Controversy of the Native Speaker Ideal

There is a stereotype in English instruction that a native speaker by nature is the best person to teach his or her native language. The myth of the idealized native speaker originated from Chomsky (1986). He believed that "linguistic theories primarily explained the actual performance of an ideal native speaker who knew his language perfectly and was not affected by such irrelevant grammatical elements as a distraction, a lot of interest, or attention in a homogeneous speech community" (Liaw, 2004, p. 36). To be more specific, he viewed grammar of a language as "a description of the ideal speaker-hearer's intrinsic competence" (p. 4) that coincided with the linguistic intuition of an ideal native speaker. The native speaker, thus, was viewed superior in the English language; on the other hand, a non-native speaker, whose native language was one other than English, bore the negative stereotype and experienced a disadvantage in terms of recognition and employment (Bae, 2006).

Other factors such as teaching experience, professional preparation, and linguistic expertise were equally important to represent a good foreign language teacher model. Medgyes (1992) claimed that NNESTs were effective and should be equally likely to reach professional success in English instruction. Phillipson (1992) argued the following:

> NESTs may, in fact, be better qualified than native speakers, if they have gone through the complex process of acquiring English as a second or foreign language, have insight into the linguistic and cultural needs of their learners, a detailed awareness of how mother tongue and target language differ and what is difficult for learners, and first-hand experience of using a second or foreign language (p. 15).

Furthermore, non-NESTs were valued as suitable models of successful second language learners (Cook, 2005; Lee, 2000) and were sympathetic about the challenges and stress faced by students struggling to master the L2 themselves (Arva & Medgyes, 2000). Medgyes (2001) explained that both NESTs and NNESTs could be equally good teachers; however, NNESTs could further "provide a better learner model, teach language-learning strategies more effectively, supply more information about the English language, better anticipate and prevent language difficulties, and be more sensitive to their students" (p. 436).

The Strengths and Weaknesses of Native English-Speaking Teachers (NESTs) and Non-native English-Speaking Teachers (NNESTs)

There have been debates on whether NESTs are better language instructors than NNESTs, and no agreements have been reached on this controversial issue. Even so, the strengths and weaknesses of NESTs and NNESTs have been examined and documented in the field of ELT. Regarding the positive aspects of NESTs, Villalobos Ulate and Universidad Nacional (2011) noted that NESTs included the following characteristics: "(1) subconscious knowledge of rules, (2) intuitive grasp of meanings, (3) ability to communicate within social settings, (4) range of language skills, (5) creativity of language use, (6) identification with a language community, (7) ability to produce fluent discourse, (8) knowledge of differences between their own speech and that of the 'standard' form of the language, and (9) ability 'to interpret and translate into the L1'" (p. 62).

Methodology

The study was aimed at exploring Taiwanese university students' perceptions and preferences toward their Native English-Speaking Teachers (NESTs) and Non-Native English-Speaking Teachers (NNESTs) in English teaching and learning. The researcher consulted three NNESTs in English related programs to ensure questions in the questionnaire covered the research scope and collected qualitative data from the three open-ended questions. The process of research involved semi-structured face-to-face interviews. Selection of participants was conducted via purposive sampling. Creswell (2009) stated that "phenomenology research is a strategy of inquiry in which the researcher identifies the lives of individuals and the essence of human experiences about a phenomenon as described by participants" (p. 3). Therefore, the philosophical approach taken in this research leans deeply towards phenomenology; the procedure requires that the researcher understands the given experiences by studying a small number of participants. All the six participants had learned English in EFL contexts for more than nine years and had the experiences of learning English from at least five NESTs and five NNESTs. Furthermore, the researcher applied a multiple data collection method to reach an in-depth perspective of the participants'

positive or negative learning experiences they used had in the classroom were examined. The students were asked the following questions:

1. Have you ever had any positive or negative experiences while learning English from NESTs? Please provide your personal experiences.
2. Have you ever had any positive or negative experiences while learning English from NNESTs? Please provide your personal experiences.

Findings and Discussion

The answers to the two open-ended research question were derived from the two open-ended questions covering three main themes: (1) pedagogical aspects, (2) teaching styles, and (3) motivation and anxiety. More precisely, the first theme, pedagogical aspects, was divided into five subcategories: oracy, writing, grammar, vocabulary and culture. After reading the participants' responses, the codes that were used in oracy section included accent, fluent, and accurate pronunciation. The codes applied to the writing section were writing style, comprehension, and feedback. Grammar rules and Chinese support were the codes utilized in the grammar section. For the vocabulary section, the codes included current words, Chinese explanations, and test-oriented educational system. The codes applied to the culture section were American life and less western culture input. Furthermore, the researcher utilized the codes of interaction, discussion, English only teaching style, good modeling, and Chinese facilitated teaching into the second theme, teaching styles. Finally, the codes used in the third theme included: interesting, relaxed classroom atmosphere, encouragement, understanding of students' needs, responsible, and boring.

Theme One: Pedagogical Aspects

All respondents (n=20) in the two open-ended questions observed that NESTs and NNESTs had good English proficiency in teaching different English language skills. This could be divided into five main areas: (1) oracy, (2) writing, (3) grammar, (4) vocabulary, and (5) culture.

Oracy. In regard to oracy, NESTs were viewed as fluent speakers with an accurate English accent. Many participants (n=12) believed taking oracy courses with NESTs helped them not only practice their pronunciation and English-speaking skills, but also observe various phrases and constructions that native English speakers used when they spoke. By using standard English, NESTs were most likely to help English learners be more acquainted with the fluent, accurate pronunciation of English. For example, one intermediate student responded, "I have experienced several NESTs who were capable of checking my errors related to word stress and intonation [in pronunciation]. I was able to avoid the errors next time during communication." Besides, learners could benefit from this positive feature of NESTs by recognizing their own errors of pronunciation and avoiding those errors to reduce the misunderstanding of native English speakers during communication.

Furthermore, few participants (n=3) considered they gained more opportunities to practice speaking and listening skills while taking an oracy class with NESTs. Benke and Medgyes' (2005) study supported this finding. They found that most NESTs encouraged learners to speak English; hence, learners were forced to stay in an English only setting. An advanced level respondent explained: "My speaking and listening skills improve a lot when I learn English in an English only classroom." There was only one negative aspect regarding NESTs' oracy classes: the high speed of NESTs' speech. These participants experienced difficulties in English learning since their NESTs' speech was too fast to follow.

One positive learning experience in regard to taking oracy classes with NNESTs was the selection of appropriate topics. Some participants (n=6) believed NNESTs were capable of picking appropriate topics with serious consideration to learners' different English proficiency levels. These choices encouraged conversation in a positive way. On the other hand, negative experiences that subjects shared mainly concerned inaccuracy in pronunciation of English and, to a lesser degree, improvement in speaking and listening skills of students. "Nonstandard" and non-native pronunciation had always been the students' main criticism of NNESTs in the literature (Lasagabaster & Sierra, 2005; Lee, 2000; Ma, 2009; Mahboob, 2004; Pacek, 2005). In this study, the Taiwanese accent of NNESTs was pointed out by most of the participants as a major disadvantage of NNESTs.

Writing. Regarding the positive learning experiences of taking writing classes with NESTs, many participants (n=12) indicated that NESTs' teaching focused on specific writing skills, which made students' writings more understandable to other native speakers of English. Moreover, the feedback from NESTs gave learners ideas about the common writing styles of native English speakers. Take an intermediate student's statement for an example. He/she claimed, "One of my NESTs asked us to be more creative and use more imaginations [imagination] on our compositions. I like to learn English writing in this way."

No negative aspect of taking writing courses with NESTs was shared by students.

Subjects' sharing of their positive experiences with NNESTs in writing courses was that they were able to use Chinese to explain what they wanted to write and discussed it with NNESTs. There were 17 participants who believed that they could express their thoughts better by using their mother tongue. A few participants (n=5) revealed their negative experiences with NNESTs related to the lack of English proficiency of NNESTs. That is, NNESTs provided the wrong feedback on students' writing assignments.

Grammar. One interesting positive experience that nine participants had with NESTs in grammar courses was that NESTs were perceived to be more familiar with the common grammar mistakes made by native English speakers. Hence, learning from NESTs helped learners to be more knowledgeable about the different uses of grammar in daily life. However, some participants (n=10) pointed out that NESTs could not explain grammar rules in detail. Students felt confused easily by different grammar rules such as tense, word variation, sentence structure, and so on. A beginner respondent shared, "I got more confused of [with] English grammar rules after my NEST's English illustration."

Over half of the participants (n=19) noted that NNESTs performed better in grammar teaching because they shared the first language with learners. Those respondents claimed that NNESTs in grammar courses provided them with Chinese examples to explain the rules of English grammar. By doing so, learners could have a clear image of the rules in mind and further realize how and when to use English grammatical forms precisely. However, Huang and Brown (2009) revealed that most Taiwanese NNESTs tended to apply a test-oriented educational system in grammar teaching. By doing so, the teaching of grammar was not for actual use. As a result, there were 11 participants who complained that learning grammar in that way was not meaningful to them.

Vocabulary. While dealing with vocabulary, many participants (n=8) shared their positive experiences with NESTs in two aspects. First, NESTs in vocabulary courses always had more current words. Besides, six respondents indicated that NESTs had authentic accent in vocabulary. That is, English learners were able to hear a native-accent pronunciation of words so they were not confused while communicating with other native speakers of English. No negative experience was shared by the participants.

About half of the participants (n=10) noted that their positive experiences toward NNESTs in vocabulary courses were that NNETs had the advantage of providing new words with explanations in Chinese. With Chinese support in new vocabularies, English learners realized accurate meaning of each new word. One intermediate student explained, "Knowing accurate meaning of words increases the chance for me to actually apply them into

some specific fields and daily life." Nevertheless, a few respondents (n=5), especially advanced English learners, considered this advantage as NNESTs' weakness. More precisely, those participants felt more comfortable to be given a synonym or sentence in English when learning a new vocabulary. Also, 10 participants complained that the test-oriented teaching on vocabulary that was applied by most NNESTs in Taiwan was an ineffective way for them to learn new words. Students were asked to memorize all new vocabularies to pass an exam rather than actually use and absorb them. Consequently, one participant in an intermediated level stated, "I tried to memorize those new vocabulary two days before my exam; however, I usually forgot most of them on the next day following the exam."

Culture. More than half of the participants (n=14) who shared their positive experiences of learning American culture agreed that NESTs were more familiar with the different features of western culture. More precisely, 14 respondents claimed that NESTs provided clear answers to those culturally related questions. In addition, a few participants (n=3) considered cultural knowledge of NESTs increased learners' level of motivation. Furthermore, with NESTs' western culture input, some participants (n=16) believed they gained more understanding of the western life and environment. Take one of the beginner participants' responses for example: "I love taking American culture courses with NESTs. I learned the origin of American holidays and western customs. It was fun." No negative responses were indicated.

As for the positive aspects of learning American culture from NNESTs, five subjects mentioned that since NNESTs shared the same mother tongue language and cultural background with learners, they were able to combine both the students' cultural backgrounds and the western customs and further select appropriate teaching materials to meet learners' needs and goals. In Benke and Medgye's (2005) research, the respondents gave compliments to NNESTs on the selection of teaching materials. On the other side, Benke and Medgye's (2005) study discovered that NESTs might not be able to answer students' questions due to the differences in cultural background of the target language, which created a communication gap between teachers and students. In this study, 17 respondents did complain of having less input on western culture from NNESTs. Although these NNESTs had experienced life in the U.S., some might care less about the western culture or be unaware of its development or ongoing changes. Such a teacher might provide less cultural input in teaching.

Theme Two: Teaching Styles

One of the teaching styles of NESTs that gained more compliments from the respondents was from using

an activity approach during class. NESTs' emphasis on learning through playing and a less textbook-bound teaching style contrasted with NNESTs' test-oriented system, and 10 students preferred the previous one. In addition, 13 participants noted that NESTs cared more about the interaction and discussion between teachers and students. Students were encouraged to question their teachers or actively share their opinions rather than being passive learners, which conflicted to what they experienced in NNESTs' classes. One intermediate respondent shared the following:

> Learning English with the purpose of gaining [a] higher grade on [an] exam makes me stressed. I preferred [learning] this target language with NESTs because they integrated various activities into teaching and encouraged us to actively discuss our opinions during class.

Consequently, more than half of participants (n=12) agreed that it would be better for intermediate or advanced English learners to learn with NESTs because they had better English proficiency and eventually students could gain more opportunities to practice English.

Nevertheless, participants (n=7) found that it was comparatively more difficult to communicate with NESTs than NNESTs due to the lack of the knowledge of students' first language and Taiwanese cultural background. More precisely, without these two factors, NESTs could hardly understand students' questions and needs. Additionally, there were five subjects who reported that the English only classroom setting made learning become more complicated. Here is one of the advanced participants' responses, for example: "I have to pay more attention to NESTs' English only classes to reduce my misunderstanding of school content." Another intermediate student had a similar point of view: "NESTs used only English to explain unknown words to me, which even confused me more."

In terms of positive aspects of NNESTs, about two-thirds of the participants (n=34) noted that NNESTs shared the same first language and culture with students; as a result, they understood students' needs and were easy to communicate with them. Specifically, those participants believed sharing the first language with learners enabled NNESTs to use Chinese to explain instructions for assignments, unknown words, activities, or exams to avoid any misunderstanding of learners. Meanwhile, sharing the mother tongue with students enabled learners to ask questions and communicate with teachers without language restrictions. Furthermore, 16 subjects believed that NNESTs had gone through the same process of learning English like themselves; they were aware of the difficulties of learning a new language. In Kelch and Sanatana-Williamson's (2002) research, they found a similar result like this study: that NNESTs were more capable of providing suitable solutions to students' learning problems.

The participants also pointed out another advantage of learning English from NNESTs. This was that NNESTs represented a good model for successful learning for students, which pushed them to make efforts to learn and further achieve high levels of language proficiency. To sum, 16 participants recommended NNESTs to teach beginning level EFL classes. By doing so, not only were teachers able to make sure of learners' understanding of instructions and feedback, but also students might have more chances to reach English language proficiency.

Two main aspects were pointed out by the participants (n=17) in regard to the negative experiences of NNESTs' teaching styles. First, NNESTs applied test-bound teaching styles and an exam-oriented educational system. Second, learners had less chance to actually practice English in class. One beginning level participant stated, "I prefer to learn English with NESTS, because I don't need to experience an exam-oriented educational system with NNESTs." Another intermediate student expressed the following: "Although the use of Chinese by NNESTs ensures my understanding of school assignments, I would like to have more opportunities to practice English in a real-life setting."

Theme Three: Motivation and Anxiety

Some participants (n=9) showed their motivation of taking classes with NESTs. Many participants preferred taking English class with NESTs because such classes were interesting and had a relaxed classroom atmosphere. For example, one advanced student elaborated: "NESTs sometimes tell some jokes, sometimes share their life experiences, which make me feel more relaxed in class. Although I may have difficulty fully understanding the sharing in English, I still enjoy the class." Additionally, some participants (n=8) mentioned that NESTs were more patient and provided students with more encouragement while they were practicing English. One beginning level participant wrote: "NESTs will not discriminate against you just because your English is poor, instead, they will compliment you as long as you are willing to use English to communicate."

The picture was not one-sided, as 18 participants reported they experienced anxiety and heavy stress when encountering NESTs. Little opportunity to interact with foreigners might be a possible contributing factor. One beginning level student stated, "It is hard for me to communicate with NESTs because I usually felt scared and [become too] shy to use English." Another intermediate participant expressed similar

feelings: "My English is not so good. I feel [felt] disappointed easily especially when I cannot communicate with NESTs."

Some subjects (n=14) revealed that taking courses with NNESTs increased their level of motivation. The reasons included: (a) NNESTs cared more about details of the curriculum, which students were able to learn more precisely, (b) NNESTs were more responsible for their work, (c) NNESTs cared about students' distinct needs, and (d) NNESTs were easy to understand. For example, one intermediate student indicated:

I feel motivate [motivated] while teaching by NNESTs because they are very concerned about accuracy in using the language and knowing the way English is the way it is. Besides, I feel comfortable to learn with NNESTs because they are easy to understand, and we can communicate without any difficulties.

Nineteen participants considered that NNESTs were strict and gave punishment to students, which was a negative experience. In Arva and Medgye's (2000) study, the respondents believed NNESTs took their teaching more seriously than NESTs; hence, students might receive punishments if they didn't perform well on their school work. Furthermore, 12 respondents pointed out the courses taught by NNESTs were boring because of the use of textbook-bound teaching styles. Based on these two main reasons, those participants considered that taking courses with NNESTs reduced their motivation and increased their anxiety of learning English.

Conclusion

The responses and the comments received from the participants indicated a set of positive and negative features regarding the English teaching of NESTs and NNESTs. In fact, the positive aspects associated with NESTs were related to using accurate pronunciation, having good English language proficiency, using standard English, providing opportunities to learners to practice English language, having awareness of the culture of the target language, offering more interaction and discussion during classes, and creating an active and relaxed classroom atmosphere. Due to the above positive aspects, the participants, in general, believed intermediate or advanced levels of English learners may learn better with NESTs. However, the picture was not one-sided: NESTs were criticized for being hard to communicate with, speaking too fast, being difficult to understand, having less awareness of students' needs, and increasing students' anxiety while communicating.

In the same vein, as shown in the responses, the participants reported that one of the major aspects where NNESTs were superior to NESTs was their

sensitivity to students' needs, difficulties, and problems, which were strongly supported by some previous empirical studies (Lasagabaster & Sierra, 2005; Lipovsky & Mahboob, 2010; Ma, 2009). Such ability may be explained by two possible reasons: (1) the sharing of the same mother tongue and the cultural background between NNESTs and the respondents, and (2) having similar experiences of the language learning process and educational system as the participants. More precisely, NNESTs had gone through the process of learning English as a foreign language, and they were perceived as typical models of successful English learners by the participants.

Since the participants in this study indicated the ability of NNESTs to select appropriate topics and teaching materials due to the sharing of the same cultural background with the learners, it is recommended that NESTs become aware about learners' cultural aspects. Meanwhile, the participants believed that NNESTs did not have enough understanding of the target language's cultural background; hence, NNESTs should increase their knowledge about various western cultural aspects as they apply to language instruction. (2) The awareness of the participants' needs and problems was seen as one of the positive features of NNESTs. In this situation, NESTs are urged to raise their awareness of learners' needs and problems to further assess students' English learning. One recommendation for increasing NEST's awareness is to analyze students' personal needs, which can be conducted at the beginning of each semester. By doing so, English teachers are able to realize and identify each learner's goal and difficulty.

Precisely, despite of the fact of the comprehensibility gap between NESTs and L2 learners, the data show that NESTs were valued as models for the accuracy of the speaking ability and natural pronunciation. Participants enjoy learning about NESTs' cultures. Even though Non-NESTs' pronunciation was considered as non-authentic and less fluent than NNESTs, L2 participants appreciated their ability in L1 code-switching skill when required. In addition, non-NESTs' capability to explain and share previous experiences on complex grammar rules was valued.

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Cognitive Variables, Classroom Behaviors, and a Participation Intervention on Students' Classroom Participation and Exam Performance

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We examined how predictive pre-course knowledge, critical thinking, attendance, course credit, and exam grades are of in-class participation. The association between exam performance and pre-course knowledge, critical thinking, participation, course credit, and attendance was also investigated. A two-level hierarchical linear model was used to examine these relationships in an undergraduate course. Students with higher critical thinking scores were more likely to participate when course credit was provided for participation than when no participation credit was available. Therefore, credit contingencies may more effectively raise participation levels of students with high critical thinking skills than students with low critical thinking skills.

Many college educators highly value student participation in class discussion (Bean & Peterson, 1998; Howard, James, & Taylor, 2002; Lai, 2012). Nonetheless, many students choose not to participate in class, even when credit is provided for participation (Aspiranti et al., 2013; Foster et al., 2009; Krohn et al., 2010; McCleary, et al., 2011; Taylor, Galyon, Forbes, Blondin, & Williams, 2014). Given the value attributed to participation, researchers have attempted to determine its importance by examining outcomes of participation (such as exam grades), quality of in-class discussion, and reasons why students choose to participate or not. In addition, some authors suggest that cognitive variables, such as pre-course knowledge and critical thinking, may play a role in the level of students' participation (Connor-Greene, 2005; Dixson, 1991; Fassinger, 1995a; Svinicki & McKeachie, 2014). Shyness, fear of social disapproval, lack of knowledge, or poorly defined ideas may be related to ongoing student reticence to participate, even when provided incentive (Connor-Greene, 2005; Fassinger, 1995b; Galyon, Blondin, Yaw, Nalls, & Williams, 2012; Mainkar, 2008; Weaver & Qi, 2005). Further, findings regarding the relationship between participation and exam performance suggest participation to be a weaker predictor of exam scores than both homework completion and critical thinking scores combined (Galyon, Blondin, Forbes, & Williams, 2013). Instead, pre-course knowledge and ACT scores were found to significantly predict exam scores in introductory psychology classes (Thompson & Zamboanga, 2004).

One persistent concern among college educators is providing incentive, such as credit, for student participation. Specifically, many college educators are reluctant to provide credit for student participation for fear that students will contribute comments that are off-topic, purposefully superficial, or a repetition of another student's previous comments. To explore this concern, Carstens, Wright, Coles, McCleary, and Williams

(2013) implemented a participation evaluation system using self-monitoring feedback from college students, immediate feedback from instructors, and interrater data from external observers on the quality of student discussion comments per discussion session. In this study, students immediately recorded a brief summary of their comments in class, followed by a rating of comment quality, using daily report cards. In addition, instructors provided a summary of each student comment, as they occurred, along with feedback that indicated the quality of the contribution (using instructor feedback categories known to the students) and a written score. Data regarding the quality and frequency of comments was found to significantly predict exam performance. Furthermore, quality of comments was equivalent to the combination of both the quantity and quality of comments in predicting exam scores. These findings suggest that, when required to evaluate the quality of their own comments, students are unlikely to intentionally contribute extraneous comments merely to meet a perceived participation quota.

To increase the value of in-class participation, researchers examined various methods of reinforcement procedures. For example, Boniecki and Moore (2003) used token economies with backup rewards to heighten participation. Results showed that college students increased participation and responded more quickly under treatment conditions (1 s) than non-treatment conditions (6 s). Hodge and Nelson (1991) used differential reinforcement to balance participation across college students. Reticent students received check marks next to their name on the chalkboard when contributing or even attempting to contribute (e.g., raising hand) to class discussion, whereas dominating students received check marks next to their name when they did not participate, did not interrupt, or participated only when called upon. Although course credit was not contingent upon the check marking

system, this system produced a more equitable distribution of comments among students. Aspiranti et al. (2013), Foster et al. (2009), Krohn et al. (2010), and McCleary et al. (2011) used course credit contingencies and self-monitoring to increase participation of reticent students and to reduce the frequency of comments made by dominating participants. In general, these researchers required college students to record the gist of their comment, and instructors gave either a stable or increasing number of participation points for up to two comments per 50 min class.

Many researchers have established the important roles of critical thinking, pre-course knowledge, and classroom participation in relation to exam grades. However, we could locate no study that simultaneously addressed all of these variables while also accounting for attendance and credit offered for participation. Furthermore, no identified articles examined the relationship between the presence of a participation credit contingency and pre-course knowledge or critical thinking. The relationship between these variables is an important area for investigation given the multitude of instructors who provide credit for participation. Knowing how credit contingencies affect students is important in course design and allocation of participation credit. If pre-course knowledge and pre-course critical thinking account for student's participation in a course, is it appropriate for instructors to continue to offer credit to the detriment of those with lower pre-course knowledge and critical thinking skills and does it perpetuate social injustice by awarding students with pre-existing skills and penalizing students who have not been provided the same affordances (i.e., the Matthew effect, in which the rich [high critical thinking] get richer and the poor [low critical thinking] get poorer [failure to earn participation points])?

Framework of the Study

The current study seeks to determine the extent to which pre-course knowledge, critical thinking, attendance, course credit, and exam grades predict participation in class discussion and the extent to which pre-course knowledge, critical thinking, participation, course credit, and attendance, predict exam performance. Assuming that most students contribute to class discussion when they regard themselves as well-informed, critical thinkers about the discussion topic, we predict that both critical thinking skills and pre-course knowledge will increase the likelihood of students commenting in class discussion. The underlying belief is that students often do not participate in class discussion because they lack information regarding course issues or have limited skills in analyzing issues related to that information. However, the authors expect pre-course knowledge to

be the stronger of the two cognitive predictors, given its direct conceptual link to issues discussed in class. Because attendance is needed to partake in class discussion, we expect attendance to be predictive of class participation. Similarly, we hypothesize that the more course credit (i.e., points toward overall final grade) accrued, the more likely students will participate in class discussion. Next, we anticipate pre-course knowledge and critical thinking to predict exam performance, as demonstrated in previous studies; however, pre-course knowledge is expected to be more strongly related to exam performance than critical thinking scores. Course credit and attendance are also predictors of exam performance, as credit indicates both level of participation and refined knowledge.

Performance on course exams provide a practical extension of the participation prediction, as we intended to identify the impact of attendance and participation as they relate to an objective measure of course knowledge. If the cognitive variables significantly predict participation, then we expect these same factors will contribute to exam performance. In addition, participation, and accompanying incentives, should also contribute to exam performance. Lastly, while a student's participation in class discussion implies an active involvement in learning, the addition of the attendance predictor can capture passive learning (i.e., not directly observed) contingent on one's presence in the classroom. Furthermore, if there are other psychological factors that may have inhibited participation, modeling attendance and passive learning can better control for and capture these factors.

Method

Participants

This study initially included 167 participants from three sections of an undergraduate educational psychology course at a major Southeastern university. Students typically enroll in this course as part of a teacher preparation program. Ten of the students either declined to participate in the research project or unenrolled from the class during the semester; these students were not included in the study. Therefore, the final sample population included 157 students ($n = 50$ to 55 students in each section). Females comprised 77% ($n = 121$) of the sample. The academic standings of the students were as follows: first year, ($n = 3$); second year, ($n = 65$); third year, ($n = 56$); fourth year, ($n = 22$); fifth year, ($n = 1$); and unidentified, ($n = 10$).

Course Structure

The course consisted of five units in which students discussed various psychoeducational issues in

Table 1
Counterbalancing across Class Units

	Unit				
	1	2	3	4	5
Section A	Baseline	Treatment	Withdrawal	Treatment	Withdrawal
Section B	Baseline	Treatment	Withdrawal	Treatment	Withdrawal
Section C	Baseline	Baseline	Treatment	Withdrawal	Treatment

human development (i.e., physical, cognitive, social, psychological, and values). Each unit consisted of 1 video day (i.e., a video depicting various concepts related to the unit), 3 to 4 days of discussion, and 1 day to take the unit test. On discussion days, students were required to complete a specified set of questions over the required articles and to review instructor-prepared notes before coming to class; thus, students had the potential to be well-informed regarding the content to be targeted in class discussion.

Second-year graduate teaching assistants (GTAs) served as lead instructors in all three sections of the course and were under the guidance of the same advisor, who trained the GTAs in methods of leading a discussion (i.e., asking conceptual questions, summarizing the students' comments, and providing affirmative feedback). In two out of five total units, students received one point for their first comment and one additional point for their second comment. The units students received credit were counterbalanced across sections and were non-consecutive within sections (see Table 1).

Critical Thinking

Students completed the *Watson-Glaser Critical Thinking Appraisal-Form S* (WGCTA) at the beginning of the semester (Watson & Glaser, 1994). Form S, a short form of the WGCTA-Form A, has 40 items and is designed to provide a general critical thinking measure for adults. The distribution of students' WGCTA scores were compared to the most recent psychometric characteristics of the norming population working in education (Watson & Glaser, 2008) and to the distribution of scores provided by independent studies of education majors in the college setting (Gadzella, Stacks, Stephens, & Masten, 2005; Zascavage, Masten, Shroeder-Steward, & Nichols, 2007). Independent T-tests indicated no significant differences in the distribution compared to the samples ($p < 0.05$); furthermore, the current sample's distribution was consistent with the sample distributions from the two studies examining college education majors. Thus, there is no evidence that participants lacked motivation to complete the measure.

Pre-course Knowledge

Students also took a 50-item multiple-choice exam that contained 10 items from each of the five course units on the first or second day in class. The purpose of this exam was to determine each student's pre-course knowledge of material that would be presented in class. Presumably, students with greater knowledge of course content could better participate in class discussion from the beginning of the course. Students received bonus credit for completing the WGCTA and the pre-course knowledge measure (approximately 4% of course credit).

Participation Procedures

The method used to measure the number of comments made by each student was previously used in the Krohn et al. (2011) study. Students could earn a small amount of credit for their contribution to class discussion during four selected days of two credit units. During each of those days, students jotted down a brief summary of each comment they made in class, along with their name and date on blank 3 by 5 index cards. A comment could consist of a student response to a question raised by the instructor, a question posed to the instructor, an opinion related to course concepts, and rationale for agreement or disagreement with the content under discussion.

On one day in each unit, two GTAs from other sections of the course counted the number of comments that each student made. In addition to their presence on this one discussion day, the GTAs were present on the unit exam day. Consequently, they were in the classroom on 2 of 6 days in each unit, giving students sufficient opportunity to acclimate to their presence in the class. As noted in the Krohn et al. (2011) study, the agreement between the number of comments reported by students and independent raters in a similar database was .88.

Data Analysis Procedures

Hierarchical Linear Modeling (HLM) procedures were used for the analyses given that HLM allows for the variables to be nested within various structures (e.g., participants within a class section, measurements within each participant) and allows regression

intercepts and slopes to randomly vary within these nested units that make up different levels of the model (Raudenbush & Bryk, 2002). Therefore, if participation and performance are impacted by the particular class section or the individuals themselves, then HLM allows for these effects to be modeled.

The research questions included in this study required two separate modeling procedures with average participation as the dependent variable of the first analysis and exam scores as the dependent variable of the second analysis. While these were two distinct analyses, the general modeling framework and procedures were similar. The procedures and notation of the models was consistent with those specified in Raudenbush and Bryk (2002) to better differentiate the variance components. The complete analyses of models used lme4 package in R.

The modeling procedures resulted in a two-level hierarchical linear model with nested and crossed modeling with both invariant and variant (by unit) variables. In particular, two of the variables (i.e., pre-course knowledge and critical thinking) were measured once at the beginning of the semester, and these were considered invariant, pre-course variables. In addition, attendance, participation, and exam scores were measured separately within each of the five units across all students. Therefore, these variables were considered variant and were nested within each student. Credit units were considered a binary treatment variable. Specifically, the three units in which credit was not given for participation were considered non-credit units (i.e., coded as a 0) while the two units in which credit was given for participation were considered credit units (i.e., coded as a 1). The units themselves were considered a random cross-effect, given that all students participated in all units and the units theoretically represent only a sample of an infinite population of possible units. This also provided a control for error across all units because each unit contains unique content and examinations.

The first model included only the within-student nested variable, which partitioned the variance between and within individuals while disregarding the impact of the unit crossed effect. The unit variable was then added next to partition the variance due to the unique content within each unit (i.e., to account for differences between unit content, interest, and difficulty level). This was considered the baseline, unconditional model, and the model fit of all subsequent models were compared to this unconditional model.

While the unconditional model includes the variance attributed to each unit, the within-student and between-student variations are the primary focus for subsequent comparisons. Specifically, the between-student variables refer to the variability that occurs across students as well as variables that are stable and invariant (e.g., pre-course knowledge). The within-student variation refers to the variability in the outcome variables that occur within

each unit across the five units. This allows us to determine the impact of predictor variables that vary from unit to unit within each student (i.e., variant variables). Combined, this allows us to determine the overall effect of a predictor variable on an outcome across students, yet capture how changes in that variable can impact an individual's student outcome from unit to unit. For example, participation's impact on exam performance allows us to determine if an individual student's change in participation also corresponds to a change in exam performance.

After establishing the unconditional model with the two random effects, predictor variables were then entered sequentially, and the process was consistent across both modeling frameworks. The invariant variables were initially added to the models to establish the between-student effects. Next, the variant variables were added to establish the within-student effects; however, the variables of interest were unique to the two analyses. In particular, the credit contingency was tested in the participation modeling and the exam performance modeling, while average participation and attendance variables were exclusively tested in the exam performance modeling. Interactions with the variant and invariant variables were also tested sequentially.

Although multiple models were tested, we were primarily focused on three unique models. The first model is the unconditional model, because this serves as the baseline model of comparison. The next model includes only the invariant, pre-course variables (i.e., pre-course knowledge and critical thinking), given that this model can capture the predictive information between the students prior to class instruction. The final model is the best fitting model, after the within-student, variant predictors (i.e., attendance, participation, credit contingences), and interactions with the invariant predictors were tested. Only significant predictor variables and interactions were included in the final model.

Restricted Maximum Likelihood Estimation (RMLE) was used to determine model fit, because it provides the least biased estimation of variance components (Singer & Willet, 2003). RMLE was used for all other model comparisons and the estimation of coefficients and variance components. The denominator degrees of freedom and t-tests for the fixed, predictor variables were estimated using a Satterthwaite Approximation (Giesbrecht & Burns, 1985; Satterthwaite, 1941).

Results

Descriptive Statistics

Table 2 provides descriptive statistics of the invariant and variant variables. As presented in Table 2, attendance was relatively consistent across units,

Table 2
Descriptive Statistics of Unit Variables

Scale	M	SD	Range
Pre-course Knowledge	22.29	4.47	11-35
Critical Thinking	26.76	5.40	16-40
Attendance			
All Units	3.59	0.71	0-4
Unit A	3.73	0.62	0-4
Unit B	3.64	0.60	0-4
Unit C	3.65	0.61	2-4
Unit D	3.39	0.82	0-4
Unit E	3.54	0.81	0-4
Average Participation			
All Units	1.13	1.11	0-6.50
Unit A	1.25	0.96	0-4.50
Unit B	1.21	1.14	0-5.75
Unit C	1.12	1.09	0-6.33
Unit D	1.23	1.24	0-6.50
Unit E	0.85	1.09	0-5.00
Exam Scores			
All Units	39.63	5.41	21-49
Unit A	39.69	4.98	23-48
Unit B	37.25	6.11	22-48
Unit C	40.85	4.45	27-49
Unit D	40.11	5.45	24-49
Unit E	40.23	5.27	21-48

Table 3
Correlations of Variables

Variable	A.	B.	C.	D.	E.	F.
A. Pre-course Knowledge	1					
B. Critical thinking	0.46*	1				
C. Attendance	-0.04	-0.10*	1			
D. Average participation	0.25*	0.21*	0.13*	1		
E. Exam performance	0.37*	0.36*	0.08$^\wedge$	0.28*	1	
F. Credit	0.00	0.00	0.01	0.17*	-0.06	1

Note. * *Denotes p-values significant at the 0.01 level*
Note $^\wedge$ *Denotes p-values significant at the 0.05 level*

ranging from a mean of 3.39 to 3.73. Although participation was relatively consistent across all five units (ranging from 0.85 to 1.25); Unit E had a noticeable decrease in participation levels. Exam performance was relatively consistent in four of the five units; however, scores were significantly lower in Unit B compared to the other four units. Mean exam scores across units ranged from 37.25 to 40.85.

Table 3 provides the correlation coefficients between pre-course knowledge, critical thinking, attendance, average participation, exam performance, and credit. As expected, pre-course knowledge and critical thinking had a moderate relationship with one another, r (155) = 0.46, p < .01. Therefore, these two invariant, pre-course variables share 21% of their variability with one another.

Participation Modeling

Table 4 presents the various participation models. The unconditional model (Model B) indicates that

Table 4
Predictive Models for Participation

Parameter	Model A	Model B	Model C	Model D	Model E	Model F
Fixed Effects						
Intercept	1.31* (0.08)	1.13* (0.11)	-0.26 (0.38)	-0.62 (0.44)	-0.81 (0.44)	-0.51 (0.45)
Pre-course Knowledge			0.06* (0.02)	0.05* (0.02)	0.05* (0.02)	0.05* (0.02)
Critical Thinking				0.03 (0.02)	0.03 (0.02)	0.01 (0.02)
Credit					0.48* (0.05)	-0.27 (0.21)
Critical Thinking X Credit						0.03* (0.01)
Random Effects						
Level-2						
Intercept	0.84 (0.92)	0.84 (0.92)	0.77 (0.88)	0.76 (0.87)	0.77 (0.88)	0.77 (0.88)
Unit		0.03 (0.16)	0.03 (0.16)	0.03 (0.16)	0.04 (0.20)	0.04 (0.20)
Level-1						
Residual	0.41 (0.64)	0.39 (0.62)	0.39 (0.62)	0.39 (0.62)	0.33 (0.20)	0.33 (0.57)
-2*log-likelihood	-	-938.8	-931.8	-930.5	-927.9	-883.6
Level-2 Pseudo R^2	-	-	8.7%	9.7%	8.4%	8.0%
Level-1 Pseudo R^2	-	-	0.0%	0.0%	14.1%	15.7%
Total Pseudo R^2	-	-	6.0%	6.7%	10.2%	10.6%

Model A-Fixed Intercept with Random Intercept
Model B-Fixed Intercept with Random Intercept and Random Unit
Model C-Fixed Pre-course knowledge added to Previous Model
Model D-Critical Thinking added to Previous Model
Model E-Credit Contingency added to Previous Model
Model F-Interaction of Critical Thinking with Credit Contingency added to Previous Model
* Denotes p-values significant at the 0.05 level
Note. Pseudo R^2 represents the percentage of variation accounted for compared to Model B
Note. Pseudo R^2 in parentheses represents the percentage of variation accounted for compared to Model B
Note. Negative Pseudo R^2 indicates an increase in variation compared to Model B

30.8% of the variance in participation can be attributed to within-student variability (σ^2 = 0.39) and 67.2% of the variance in participation can be attributed to between-student variability (τ_{00}= 0.84). When the pre-course knowledge and critical thinking variables were added to the model (Model D), the between-student variance (τ_{00}= 0.76) decreased by 9.7% from the unconditional model, although it did not impact the within-student variance.

The best fitting model (Model F) includes the significant interactions with the invariant variables (pre-course knowledge and critical thinking) and the credit contingency. In particular, pre-course knowledge was a significant predictor of participation, β = 0.05, $t(154)$ = 2.65, p < 0.01. Also, there was a significant interaction between critical thinking and the credit contingency, β = .03, $t(622)$ = 3.61, p < 0.001; however, the main effects of critical thinking, β = 0.01, $t(167)$ = 0.87, p = 0.38, and the credit contingency, β = -0.27, $t(624)$ = -1.25, p = 0.21, were not significant. These findings indicate that higher participation is associated with higher pre-course knowledge. Furthermore, the interaction between critical thinking and the credit

contingency indicates that critical thinking increased one's level of participation when the credit contingency was present more significantly than in the absence of this contingency. Overall, compared to the unconditional model, this final model decreased the between-student variance (τ_{00}= 0.77) by 8.3% and the within-student variance (σ^2 = 0.33) by 15.7%. Across these two levels, this final model decreased the variability by 10.6%.

Exam Performance Modeling

Table 5 presents the various exam performance models. The unconditional model (Model B) indicates that 36.4% of the variance in exam performance can be attributed to within-student variability (σ^2 = 10.82), 57.4% of the variance in exam performance can be attributed to between-student variability (τ_{00} = 17.06), and the remaining 6.3% can be attributed to between-unit variability (τ_{00} = 1.86). When the pre-course knowledge and critical thinking variables were added to the model (Model D), the between-student variance (τ_{00} = 11.75) decreased by 31.1% from the unconditional model, although it did not impact the within-student variance.

Table 5
Predictive Models for Exam Performance

Parameter	Model A	Model B	Model C	Model D	Model E	Model F	Model G
Fixed Effects							
Intercept	39.63*(0.35)	39.63*(0.70)	29.54*(1.70)	26.04*(1.86)	23.77*(2.02)	24.34*(1.99)	24.58*(1.98)
Pre-course Knowledge			0.45*(0.07)	0.32*(0.08)	0.32*(0.07)	0.29*(0.07)	0.28*(0.07)
Critical Thinking				0.25*(0.06)	0.25*(0.06)	0.24*(0.06)	0.24*(0.06)
Attendance					0.58*(0.21)	0.52*(0.21)	0.55*(0.21)
Participation						0.57*(0.18)	0.71*(0.19)
Credit							-0.72*(0.29)
Random Effects							
Level-2							
Intercept	16.68 (4.09)	17.06 (4.13)	13.05 (3.61)	11.75 (3.43)	11.40 (3.38)	10.69 (3.27)	10.56 (3.25)
Unit		1.86 (1.36)	1.86 (1.36)	1.86 (1.36)	1.91 (1.38)	2.01 (1.42)	1.89 (1.38)
Level-1							
Residual	12.68 (3.56)	10.82 (3.29)	10.82 (3.29)	10.82 (3.29)	10.78 (3.28)	10.76 (3.28)	10.70 (3.27)
-2*log-likelihood	-	-2226.9	-2208.1	-2200.7	-2196.9	-2191.8	-2188.7
Level-2 Pseudo R^2	-	-	23.5%	31.1%	33.2%	37.3%	38.0%
Level-1 Pseudo R^2	-	-	0.0%	0.0%	0.4%	0.5%	1.1%
Total Pseudo R^2	-	-	14.4%	19.0%	20.4%	23.0%	23.6%

Model A-Fixed Intercept with Random Intercept
Model B-Fixed Intercept with Random Intercept and Random Unit
Model C-Fixed Pre-course Knowledge added to Previous Model
Model D-Critical Thinking added to Previous Model
Model E-Attendance added to Previous Model
Model F-Average Participation added to Previous Model
Model G-Credit Contingency added to Previous Model
* *Denotes p-values significant at the 0.01 level*
Note. Pseudo R^2 represents the percentage of variation accounted for compared to Model B
Note. Pseudo R^2 in parentheses represents the percentage of variation accounted for compared to Model B
Note. Negative Pseudo R^2 indicates an increase in variation compared to Model B

The best fitting model (Model G; Table 5) determined that pre-course knowledge, $\beta = 0.28$, $t(156) = 3.87$, $p < 0.01$, critical thinking, $\beta = 0.24$, $t(155) = 3.93$, $p < 0.01$, attendance, $\beta = 0.55$, $t(739) = 2.63$, $p < 0.01$, average participation, $\beta = 0.71$, $t(690) = 3.84$, $p < 0.01$, and the credit contingency, $\beta = -0.72$, $t(662) = -2.50$, $p < 0.05$, were all significant predictors of exam performance. Interactions between these variables were tested, but no significant interactions were present. These findings indicate that higher scores in pre-course knowledge, critical thinking, attendance, and average participation are associated with higher exam scores. Conversely, the presence of the credit contingency is associated with a decrease in exam performance. Overall, compared to the unconditional model, this final model decreased the between-student variance ($\tau_{00} = 10.59$) by 38% and the within-student variance ($\sigma^2 = 10.70$) by 1.1%. Across these two levels, this final model decreased the variability by 23.6%. In other words, 38% of exam performance, across all students, can be explained by pre-course knowledge, critical thinking, attendance, average participation, and the credit contingency.

Discussion

This study is both a replication and extension of the existing literature. Correlations between student performance variables and participation and exam performance were reaffirmed. The sequential ordering of the modeling, with invariant, between-student predictor variables added initially, provides unique information about participation and exam performance across students that was present prior to a single day of instruction. By adding the variant, within-student variables provide unique information about the impact of variables that change across the duration of a course with changes that are unique to each student.

Examining the predictive ability of student performance variables simultaneously provides a novel approach and allows for a more comprehensive understanding of the variance associated with participation and exam performance. In addition, the examination of the effect credit contingencies and critical thinking have on participation provides new insight into how and why students may elect to participate in class discussion.

Primary Participation Findings

One of the most interesting findings of the study, from our perspective, pertains to the credit contingency, which slightly increased between-student variance but decreased the within-student variance by 14%. On the surface, the former finding appears to contradict previous research demonstrating that credit contingencies balance classroom participation by increasing the participation of students unlikely to contribute and decreasing the participation of students who tend to dominate class discussion (Aspiranti et al., 2013; Foster et al., 2009; Krohn et al., 2010; McCleary, et al., 2011). However, it was also found that critical thinking increases participation when a credit contingency is in effect more than when no credit is offered (i.e., students high in critical thinking are more likely to participate when a credit contingency is present than students who have lower critical thinking scores). Thus, when considering both findings, it appears that the credit contingency is more effective at influencing students with higher critical thinking scores to participate more than they otherwise would and has little effect on students with low critical thinking scores. This is a variable not accounted for by previous researchers (e.g., Aspiranti et al., 2013; Foster et al., 2009; Krohn et al., 2010; McCleary, et al., 2011; Taylor et al., 2014). Therefore, while credit contingencies are effective at balancing the participation of the class, the offering of participation credit appears to only target students with higher critical thinking abilities. This interpretation is also supported by previous researchers who successfully balanced classroom participation via credit contingencies, but were still unable to effect change in the most reticent students (Aspiranti et al., 2013; Foster et al., 2009; Krohn et al., 2010; McCleary, et al., 2011). Confirmation also comes from the latter finding, which indicates that the credit contingency decreased within-student variability. The decrease in student variability suggests that the presence of the credit contingency may make students more consistent to themselves. For example, a student who does not want to talk in class will be more resolute in this position; however, a student who has something to say, but perhaps has difficulty timing the comment with the flow of the discussion, will make more of an effort to be heard when credit is offered.

As predicted, students with higher pre-course knowledge scores are more likely to participate in class discussion. A possible explanation for this relationship is that the more pre-course knowledge one has, the more likely one is able to retrieve past information and connect old information with new information (Wendling & Mather, 2009). Individuals who believe they have a strong basis for a comment may be more likely to make themselves vulnerable to a critique by participating in the class discussion.

Primary Exam Performance Findings

Pre-course knowledge and critical thinking decreased the between-student variability by 31% from the unconditional model, but they did not change the within-student variability. Both findings are expected, as both pre-course knowledge and critical thinking are unlikely to significantly change during the length of a semester (Williams, Oliver, Allin, Winn, & Booher, 2003).

Critical thinking, pre-course knowledge, attendance, average participation, and credit were all significant predictors of exam performance. Specifically, higher exam scores were associated with higher scores in critical thinking, pre-course knowledge, attendance, and average participation. Higher amounts of course participation credit received were associated with decreased exam scores, which is an unexpected finding that may be artificially induced by the design of the analysis itself. When interpreting this result, one must consider the previously discussed interaction of critical thinking, credit, and participation. As demonstrated, critical thinking was the variable influencing students to participate under the credit contingency. In this model, critical thinking is likely to have already accounted for the likelihood of the student to participate and consequently earn credit.

The final model with all significant variables decreased the variability by 24%. This is valuable information for instructors and program directors. Knowing that 24% of a students' exam grades are based on pre-course knowledge, critical thinking, attendance, average participation, and a credit contingency for participation, the instructor could more effectively design the course to target these variables and potentially raise exam grades. Although pre-course knowledge and critical thinking are unlikely to significantly change over the course of the semester, they are likely to significantly change throughout one's collegiate career. Therefore, pre-course knowledge and critical thinking are important variables to design for in one's course and the course sequence of a program. For example, ensuring a more advanced course has prerequisites that allow students to build on previously taught information while fostering in-depth student discussions can reinforce skills necessary to critically

evaluate course concepts. Instructors with little control over course sequence may consider altering methods of demonstrating participation. For example, a participation grade may be based on a written reflection instead of an oral contribution during class. Additional options are to provide questions in advance of class so students can prepare responses to contribute orally in class; include more wait time for students to process questions, formulate coherent responses, and orally respond; allow participation credit to be earned during small group work; or require students to post discussion questions on the course website (e.g., Desire2Learn, Blackboard), which the instructor then addresses with the class as a whole.

Limitations and Future Directions

One of the major limitations of this study is the lack of a critical thinking post-test, which would have allowed for a more thorough understanding of the relationship among the cognitive variables, classroom behaviors, and outcome variables. Another limitation of the critical thinking test and pre-course knowledge assessment is that we were unable to monitor or determine how much effort students put into these measures. However, we were able to determine that the distribution of critical thinking scores was not significantly different from the norming population and other independent studies of students in college education courses. Therefore, we believe this provides tentative evidence that the critical thinking scores are consistent with scores that would be expected in a valid sample. Furthermore, as expected there was a moderate and significant correlation between critical thinking and pre-course knowledge. Therefore, we believe that this provides additional evidence for the validity of these estimates.

Other potential limitations to the generalizability of the results relate to the course size and design. Courses with a different focus and design should also be studied. Most of the research on critical thinking, participation, and exam performance has been conducted in discussion-based classes in which most of the discussion questions posed in class are provided prior to class. It would be interesting to identify how these results may change in a lecture-based course and in a discussion-based course that does not provide discussion questions before class. Similarly, future studies should examine potential differences between these variables in relation to the size of the class. The current study used classes which contained approximately 52 students. However, classes can range from less than ten students to several hundred. It is possible that a student who may be a dominant participant in a small class may be disinclined to participate in a larger class.

The design of the credit contingencies by unit with only three sections also provides a limitation. Specifically, with the limited number of sections, we were unable to test credit units in alternative sequences (i.e., successive units) to better determine the effects of the credit contingency and better account for error that was unique to the units in which they were offered. Although we controlled for a portion of the error by treating the units as a random crossed effect, we cannot completely ascertain the effects of uncontrolled error. This limitation may be most evident in the exam performance modeling, in that considerably more error was attributed to the unit effects. An auxiliary analysis of exam performance with score standardized by unit indicated that the coefficient remained negative but became non-significant.

Finally, the degree to which the credit contingency encourages students with high critical thinking to participate more frequently should be researched in regard to the amount of credit offered. It may be that a course offering more than approximately 4% of the total course grade for participation would be more enticing for students with lower critical thinking scores who seldom, or never, participate in discussion. Relatedly, more research is needed to ascertain the impact of personality factors that may contribute to one's willingness to participate, such as introversion, fear of negative feedback, low self-esteem, etc.

Conclusion

Students with higher critical thinking and pre-course knowledge are more likely to participate in class discussions. Furthermore, when an incentive to participate is offered, higher critical thinking is associated with higher participation than when no incentive is offered. In other words, the higher a student's critical thinking, the more likely that student is to respond to the incentive. How instructors or institutions choose to use this correlational information may vary. For example, some may view awarding of participation credit as a reprehensible social justice issue (i.e., the Matthew effect), whereas others may use this information as one method to identify students who may benefit from additional assistance. The other primary finding is that critical thinking, pre-course knowledge, participation, and attendance all contribute to exam performance, suggesting students may increase their attainment of knowledge through active (i.e., participation) and passive (i.e., attendance) learning. In sum, this study indicates the importance of examining participation both as an outcome and predictor of learning.

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Self-Study as a Method for Engaging STEM Faculty in Transformative Change to Improve Teaching

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Reform efforts in the teaching of undergraduate science, technology, engineering, and mathematics (STEM) have included introducing faculty to specific teaching strategies and engaging them in collaborative initiatives. This study examined the experiences of STEM faculty learning interactive teaching strategies while also learning and applying self-study methodology in a year-long faculty self-study learning community. We used self-study methodology as an innovative design to support STEM faculty's research about their teaching. Drawing on multiple sources of data, the researchers found that although participants reported that learning self-study methodology was unique and complex, they embraced the problematic and sophisticated nature of self-study to examine their teaching while recognizing the close link between teaching and research. As they reflected on their professional identities as teachers, they gained a better understanding of their role in their students' learning. Supporting faculty's small changes in teaching can lead to larger changes over time. Self-study methodology can reinforce the change process. The self-study learning community design may be useful as a catalyst for developing an advanced teaching trajectory for STEM faculty and useful for faculty from various disciplines. Implications for impacting individual and institutional capacity in higher education are discussed.

Reform efforts in the teaching of undergraduate science, technology, engineering, and mathematics (STEM) have been extensive with an urgency to transform faculty instruction within these critical needs content areas (Austin, 2011; Fairweather, 2008; Fry, 2014; Jamieson & Lohmann, 2009; President's Council of Advisors on Science and Technology [PCAST], 2012; Sunal et al., 2001). STEM faculty often teach scores of undergraduates in courses foundational to students' academic success and career paths, yet they may have little training in teaching and/or opportunities to collaborate with peers as they assess their pedagogical strategies. Learning to teach, regardless of years of teaching, is a complex and "sophisticated business" (Loughran, 2014, p. 5). Many STEM faculty teach in lecture halls using a teacher-centered, rather than learner-centered, mode of delivery (Freeman et al., 2014).

Various initiatives designed specifically for improving STEM faculty teaching have been explored. Those initiatives have included introducing STEM faculty to alternative formats of instructional dissemination (Deslauriers, Schelew, & Wieman, 2011; Hayward, Kogan, & Laursen, 2016; Henderson, Finkelstein, & Beach, 2010; Wieman, 2017), observation (Smith, Jones, Gilbert, & Wieman, 2013), and inquiry (National Research Council, 2012). Initiatives for improving faculty teaching have involved familiarizing faculty with innovative teaching strategies and reflective practices (e.g., Balmer & Richards, 2012; Gunersel & Etiene, 2014; Lyons, 2010; Lavis et al., 2016). Researchers have studied pedagogical strategies and programs for improving interactive teaching practices (Cox & Harris, 2010; Light, Calkins, Luna, & Drane, 2008). As Dawson, Burnett, and Donohue

(2006) assert, while universities have promoted and invested in learning communities to enhance the student learning experience, there has been less investment in supporting faculty in communities to enhance their teaching experience.

There is an emerging body of literature focused on the importance of faculty collaboration to enhance teaching and on outlets for faculty to discuss their teaching (Gast, Schildkamp, & van der Veen, 2017; McKenna, Yalvac, & Light, 2009; Percy & Beaumont, 2008; Walsh, & Kahn, 2009. Collaboration has taken place in various forums including faculty study groups (Wildman et al., 2000) and faculty learning communities to support faculty's scholarship of teaching and learning and with a focus on community building (Cox, 2003, 2004; Ward & Selvester, 2012; Wildman et al., 2000). Yet, there is often little incentive for faculty to dialogue about their teaching at a level which moves beyond learning technical teaching strategies (Bryant, Niewolny, Clark, & Watson, 2014; Rowland, 2001). Furthermore, the notion of studying and publishing research about one's own teaching may not be fully understood or valued by administrators and faculty within higher education (Kahn, Goodhew, Murphy & Walsh, 2013).

As an innovative and emerging approach for faculty development, self-study methodology provides faculty with a reflective means to study and write about their teaching practices while engaging with colleagues for support and critique (Pithouse-Morgan & Samaras, 2015a, 2015b; Samaras, 2011; Samaras & Pithouse-Morgan, 2018b). A key difference of self-study learning communities from other faculty learning communities is that the self is data with self-study

methodology centering community interactions and support provision. As an astrophysicist who participated in an earlier faculty self-study learning community exclaimed to the facilitator, "Oh, I get it. In self-study research, I'm the data!"

Self-study has been reported as transformative for faculty working within transdisciplinary faculty self-study learning communities. The polyvocality representing the alternative points of view within the faculty self-study learning community has supported this transformative process (Harrison, Pithouse-Morgan, Conolly, & Meyiwa, 2012; Pithouse, Mitchell, & Moletsane, 2009; Samaras et al., 2014; Samaras & Pithouse-Morgan, 2018b). In transdisciplinary self-study faculty learning communities, participants dialogue about their research, exchanging information and discipline-specific approaches. "Transdisciplinary research allows investigators to transcend their own disciplines to inform one another's work, capture complexity, and create new intellectual spaces" (TREC, 2018) and with a common scientific goal (Rosenfield, 1992). In addition to transformative changes via dynamic collaboration, self-study methodology creates products that are sharable via journal articles, presentations, and other products that faculty in STEM departments need for promotion and tenure (Dolan et al., 2017).

The purpose of this study was to explore the experiences of STEM faculty who participated in a year-long faculty self-study learning community to improve their teaching. It included faculty who teach in the fields of astronomy, bioengineering, biology, geology, information sciences and technology, and mathematics at a large public, research-extensive (R1) university in the United States. The faculty self-study collaborative was situated within a National Science Foundation (NSF) funded grant which entailed a design framework grounded in Laurillard's (2012) conceptualization of teaching as a design science. The overarching goal of the grant was to explore how to broaden STEM instructors' adoption of interactive teaching with evidence-based teaching practices.

Foundations for the Study

Significant research has been conducted about collaborative models to support faculty in their efforts to improve their teaching practices. Many have focused on the need for a community of learners with a shared practice and peer support (e.g., Cox, 2003, 2004; Kahn et al., 2013). For example, McKenna, et al., (2009) examined how to create collaborative partnerships between engineering faculty and learning scientists to encourage collaborative, reflective, and improved teaching. Although research for improving STEM faculty's teaching has been conducted, research for improving STEM faculty's teaching in a faculty self-

study community using self-study methodology for faculty outside of teacher education has not been conducted. Research facilitating the learning and enactment of self-study methodology for faculty inside and outside of teacher education has been conducted both within and beyond the United States (Lunenberg & Samaras, 2011; Pithouse-Morgan et al, 2015; Ritter et al., 2018; Samaras et al., 2016).

Collaboration in faculty's development of their teaching has been shaped in diverse and productive forums including those relevant to this study: supporting teaching in faculty learning communities; supporting teaching in teacher educator self-study groups; and supporting teaching in faculty transdisciplinary self-study learning communities.

Supporting Teaching in Faculty Learning Communities

There is a great deal of research about the value of situated learning communities of practice for learning in general (Lave & Wenger, 1991; Wenger, 1998) and learning communities *in* practice to support teaching in diverse educational contexts (Samaras, Freese, Kosnik, & Beck, 2008; Lassonde & Israel, 2010). There are university centers committed to supporting faculty teaching in collaborative forums (Cox, 2003). However, when there is limited support, faculty must rely on their own resources. The implementation of faculty learning communities has been an avenue for faculty to gain the needed support (Dawson et al., 2006).

The scholarship of teaching and learning (SoTL) has been a prominent professional development forum in higher education (Becker & Andrews, 2004; Cox, 2003). Engin and Atkinson (2015) note that the basis of faculty learning communities (FLCs) are as "communities of practice" (p.1) which build upon Cox's (2004) work as faculty engaged in active collaboration to enhance their teaching and learning in "the scholarship of teaching and community building" (p. 8). Faculty learning communities also function to meet personal and professional needs of faculty by providing "resources, social networks, and innovative ideas" (Dee & Daly, 2009, p. 2) and to promote self-efficacy and agency. Additionally, participation in FLCs has been shown to have encouraging effects for both students and faculty in institutions where a specific instructional innovation or teaching and learning practice is being studied (Gordon & Foutz, 2015; Ward & Selvester, 2012).

In a study conducted by Smith et al., (2008), researchers sought to determine the effects of a FLC on the use of new instructional strategies to support STEM faculty to "enhance the achievement of underrepresented and disadvantaged students in the STEM fields" (p. 203). Data supported that goals were met, with collegiality, awareness,

and understanding of teaching methods all ranking high among participating members. In another study involving STEM faculty, Nadelson (2016) created what he termed a "faculty community of practice (FCP)…to increase capacity, engagement, and collaboration of faculty members" (p. 44). Nadelson's findings suggest that the implementation of a year-long FCP can lead to an increased understanding of instructional strategies and how students learn, as well as increased collegiality due to conducting research in collaborative ways.

Supporting Teaching in Teacher Educator Self-study Faculty Groups

Self-study of teaching provides faculty another type of professional development opportunity to improve their teaching as they design a self-initiated and situated inquiry that entails self- and peer assessment in a supportive culture for learning about pedagogy. It originated with teacher educators of the Self-Study of Teacher Educators Special [S-STEP] Interest Group of the American Educational Research Association. These teacher educators wanted to practice what they were asking their teacher education students to do: undertake a systematic and transparent pedagogical inquiry with the support of colleagues to improve their professional practice (see Loughran, Hamilton, LaBoskey, & Russell, 2004). As Feldman, Paugh, and Mills (2004) assert, in self-study of teaching, faculty are a resource for their research about their teaching and "problematize their selves in their practice situation" (p. 971). It requires a "willingness to publicly problematize [one's own] teaching and learning [about one's own teaching] … be open to, and act upon, the curiosities, surprises, and challenges of everyday teaching practice; and to actively seek out alternative perspectives on practice" (Berry, 2015, p. 964). As noted by those who have engaged in self-study (Samaras et al., 2014):

> In more conventional forms of the scholarship of teaching and learning…faculty tend to see change in themselves, even transformative change, as a by-product of change in them, their students. Self-study of teaching, which requires focus first on the teacher, the ''I,'' locates the struggle for efficacy within the self, rather than externalizing it as under the control of the actions of others (p. 381).

Self-study is about the study of changing one's role in teaching by examining oneself, rather than the study of the effectiveness of instructional strategies by examining only student outcomes. The goal of self-study is for teachers to be active agents in examining their beliefs about their teaching practices and educational problems for improvement-aimed purposes beyond themselves as they contribute to a knowledge base of education (Loughran & Northfield, 1998).

In addition to teacher educators undertaking individual self-studies of teaching (e.g., Berry, 2007; Brown, 2002), they have joined with colleagues and small groups of other teacher educators to collaboratively explore practical problems in teacher education and/or work to support each other's individual inquiries in faculty self-study groups (Grierson, Tessaro, Cantalini-Williams, Grant, & Denton, 2010; Hoban, 2007; Kitchen, Ciuffetelli, Parker, & Gallagher, 2008; Lunenberg, Zwart, & Korthagen, 2010; Samaras, Kayler, Rigsy, Weller, & Wilcox, 2006). By dialoguing with critical friends, faculty have opportunities to explore a chosen dilemma about their teaching and deepen their awareness of the tensions and taken-for-granted assumptions about their practice (Berry, 2007).

Supporting Teaching in Transdisciplinary Faculty Self-study Learning Communities

Although self-study methodology originated with teacher educators, it has been extended as a professional development model to faculty who work outside of colleges of education offering opportunities for faculty from various disciplines and contexts to study their teaching (Harrison, et al., 2012; Hernández Gil de Lamadrid & Román Mendoza, 2015; Pithouse, Mitchell, & Moletsane, 2009; Samaras et al. 2014; Wilcox, Watson, & Paterson, 2004). Individuals working in these transdisciplinary collaboratives are extending their knowledge and perspectives about the research of teaching by dialoguing with peers outside their disciplines, with the self-study methodology, rather than their disciplines, centering their dialogue. Self-study learning communities transcend discipline, position, and context.

Self-study joins term faculty (non-tenure track whose work is more focused on teaching) with non-term faculty (tenure-track or tenured). Self-study learning communities connect early career academics with more senior academics in a polyvocal design that entails plurality, interaction, interdependence, and creative activity (Samaras & Pithouse-Morgan, 2018b; Smith et al., 2018) linked to Bakhtin's notion of polyphony (1984):

> A plurality of independent and unmerged voices and consciousnesses, a genuine polyphony of fully valid voices . . . with equal rights and each with its own world, combine but are not merged in the unity of the event (p. 6).

The Methodology of Self-study

Self-study methodology is a postmodern qualitative research genre entailing various self-study methods

(LaBoskey, 2004; Tidwell, Heston, & Fitzgerald, 2009). It is used by faculty to deconstruct their teaching practice from an ontological stance or their ongoing development in knowing and re-knowing their teaching (Pinnegar & Hamilton, 2009). Distinguishing features of self-study from other collaborative methods are its specific methodological components (LaBoskey, 2004). Its methodological components include: personal situated inquiry, openness, reflection, peer review for validation, and transparent data analysis for improvement-aimed purposes which contribute to personal professional learning while generating knowledge for the field (Barnes, 1998; LaBoskey, 2004; Loughran, 2004; Pinnegar & Hamilton, 2009; Samaras, 2011). Self-study methodology entails methodological inventiveness to explore a personal inquiry (Pithouse-Morgan, Coia, Taylor, & Samaras, 2016; Whitehead, 2004). In this way, self-study deepens personal reflection to a critical internal reflection that is supported and critiqued by a critical friend, as well as a larger peer group. Both externally-oriented and reflective methods are important strategies for faculty development and are dynamic and iterative for continuous learning.

LaBoskey (2004) has noted the multidimensional aims of self-study methodology, arguing that its proponents "wish to transform [themselves] first so that [they] might be better situated to help transform [others], and the institutional and social contexts that surround and constrain [them]" (pp. 820-821). Nonetheless, faculty do not work alone in self-study but with peers in order "to step outside themselves" (Loughran & Northfield 1998, p. 14) for their deeper questioning about improving their teaching practice. Faculty peers work as critical friends (Costa & Kallick, 1993; Schuck & Russell, 2005) providing reciprocal, thoughtful, and insightful feedback on the actions and engagement of each other's practice. More particularly, self-study is combined with the location of inquiry in the self and with the ability to change aspects of that self because of the collaboration with others (LaBoskey, 2004; Samaras & Freese, 2006). Self-study methodology paradoxically demonstrates the power of the "we" to develop the "I" for improving teaching practice (Pithouse-Morgan & Samaras, 2015b, p. 6), and that work takes place within a learning community.

Methods

The purpose of the study was to explore the perspectives of STEM faculty engaged in a faculty self-study learning community to improve their teaching. The faculty self-study learning community was envisioned as the penultimate project of a NSF grant designed for faculty who were ready to move beyond simply trying out new interactive teaching strategies to exploring the role they play in improving their teaching. Participants also had the opportunity to write about the enactment of their new pedagogies and were supported in that process. In the second year of the grant, the faculty self-study learning community was launched and facilitated by a teacher educator who is a self-study scholar. Specific to the faculty self-study learning community was the goal of facilitating participants' learning, enactment, and dissemination of their individual self-studies with ongoing support from a facilitator who employed design elements.

The study was conducted by a diverse research team which included: a teacher educator/self-study scholar, a mathematics educator, an electrical engineering faculty member, an educational psychologist/program evaluator, and a teacher education doctoral candidate. The group was facilitated by the teacher educator who is an expert in self-study methodology and served as a Co-PI of this NSF-funded research grant. This is the fourth faculty self-study collaborative she has facilitated/co-facilitated. Data were collected throughout the project to explore the following research questions:

- What did participants report about their experiences in learning and enacting self-study methodology in this faculty self-study learning community?
- What did participants learn about classroom-based self-study research?
- What role did the collaborative design play in their experiences?

Participants

The six people who participated in this faculty self-study learning community taught undergraduate STEM courses and included four females (one each from the fields of astronomy, bioengineering, geology, information sciences and technology) and two males (one each from the fields of biology and mathematics). Four faculty were term (non-tenure track) with positions focused on teaching at the assistant and associate ranks. One female faculty was tenure-track faculty at the assistant rank, and one male faculty was tenured at the full professor rank. Three faculty held administrative roles in addition to their teaching which included a coordinator, a department chair, and a graduate studies administrator. Faculty had between 5 and 26 years of service at the university, with an average of 14 years.

Project Design: PAIDIA Design Elements

This learning community was enacted using design elements for facilitating what is known as polyvocal

transdisciplinary faculty self-study learning communities - PAIDIA (acronym, see below). PAIDIA design elements were developed by two teacher educators (one was the facilitator in this study and the other is a facilitator in South Africa) to be inclusive of the needs of faculty inside and outside of colleges of education (see Samaras & Pithouse-Morgan, 2018b). They co-constructed the design over time from their repeated explorations of enacting it which validated the design elements in actual practice (Samaras & Pithouse-Morgan, 2018a). They have also conducted numerous individual and collective self-studies of their co-facilitation in their respective institutions in the United States and in South Africa (Pithouse-Morgan et al., 2015; Samaras, 2013; Samaras et al., 2013, 2014; Smith et al., 2018). To learn from each other's experiences, they dialogued on a transnational and transcultural level (Samaras et al., 2015, 2016).

PAIDIA design elements are rooted in Neo-Vygotskian (1978; 1981) tenets of interpersonal and intrapersonal learning with communities *in* practice (Samaras et al., 2008) and from a conceptual perspective of "reflexive Ubuntu," explained as "understanding the value of locating oneself in the experiences of others as a form of demonstrating an ethics of care and trust" (Harrison et al., 2012, p. 17). Key conceptual underpinnings for the facilitation of polyvocal transdisciplinary self-study learning communities include: encouragement and nurturing of collaborative conversations across disciplinary, programmatic, status and spatial divides; sharing multiple expertise with participants supporting each other's learning through continuous dialogue; and using visually rich digital tools as symbols to mediate written language. Also central to the PAIDIA design is co-flexivity or "being reflexive together through thinking deeply about and questioning our professional practice and selves in dialogue with significant others" (Pithouse-Morgan et al. 2015, p. 148). Another central tenet to the design is co-creativity or connecting in arts-informed ways with critical friends to promote imaginative and responsive ways that can transform practice (Harrison et al., 2012; Pithouse-Morgan et al., 2015).

PAIDIA elements include:

Personal Situated Chosen Inquiry. Participants choose to join the collaborative and choose their inquiries situated in their immediate professional contexts and in relation and response to wider socio-cultural-historical-political contexts.
Accountability**.** Accountability begins with each participant reconsidering her/his professional practice with input and support from critical friends to build self-regulated, authentic professional learning.

Integrated Critical Creative Collaboration. Participants engage in an interactive and interdependent learning that proves to promote diverse ways of seeing and knowing with others in order to deepen and extend their professional learning. Central to the groups' work are ongoing, intellectually safe structures for reciprocal mentoring with critical friends to recognize and value co-flexivity and co-creativity.
Design ↔ **D**issemination. By sharing ongoing drafts of their research, participants make their efforts public through informal presentations and writing, noticing their attention to a transparent research design that clearly and accurately documents the unfolding research process.
Improved Learning for Self and Others. Participants engage in critical and deep questioning about the status quo of their practice in order to improve and impact learning and contribute knowledge.
Authenticated and Invited Leadership. The facilitator authenticates self-study research by practicing it herself while also inviting leadership a n d encouraging participants to contribute their d i v e r s e expertise and experiences.

Project Structure and Pedagogical Activities

The yearlong collaborative began in early September 2015 with an invitation sent by the research team to participants who had been involved in year one of the grant, stating:

> We would like to personally invite you to an amazing professional learning opportunity where you along with colleagues in STEM will engage in rich dialogues, research, and writing about interactive teaching strategies…the goal of the collaborative is for you to learn about and conduct a self-study research project that would help support your efforts with evidence from your classroom.

The project was launched at the end of September 2015 with a focus on participants learning self-study while they enacted individual self-study projects. The group met monthly for one year in two-hour meetings. All meetings were face to face except for one which was a virtual meeting held during the facilitator's sabbatical.

At the first meeting, of the dozen faculty who attended, six remained and attended monthly meetings, working with critical friends during those meetings. The program evaluator and a graduate student research assistant also participated in the monthly meetings. Of the twelve who attended the first meeting, two did not continue, indicating that studying their teaching does not

count as research productivity. This was also noted as problematic by Graham (2015) for engineering faculty. Some faculty stated they had significant programmatic responsibilities and could not devote adequate time, and/or perhaps others were just not interested.

The monthly group meetings focused on introducing self-study of teaching and included learning self-study as a research method; developing a topic for self-study; designing self-study research questions; working with critical friends; and writing, presenting, and publishing a self-study of teaching research. The facilitator launched the initiative by asking participants to bring an artifact or an object that symbolized the main focus of what they wanted to study about their teaching (See Samaras, 2011), which they first shared in small groups. All activities were posted on an online discussion forum for sharing and documenting. For example, the astronomy faculty brought a box of lights and memoed about it:

> I am struck by the idea that learning involves making connections between new knowledge and former knowledge. I devise ways to try to see what students know, and I get patterns back from students based on what I have designed…tests are so limited. I am only seeing the surface. … I am looking for a way for students to show me not just the neat clear design flowing from a traditional test, but also the tangles and unconnected nodes that would be valuable to build learning toward and from (See Figures 1 and 2).

As participants worked to find the focus of their chosen teaching inquiry, they shared their ongoing thinking and drafts in two groups of three critical friends. The facilitator utilized various pedagogies informed by her earlier co-facilitation with faculty outside her discipline. She came to understand how faculty development advances when participants are provided opportunities for "unaccustomed ways of experiencing our questions, unaccustomed ways of deciding what constitutes data, and unaccustomed ways of relating to our teaching and our research." (Pithouse-Morgan & Samaras., 2018b, p. 321).

Figure 1
The test I design to see what is inside

Figure 2
Lots of light I cannot see, but tangles too and sometimes disconnects or misconnections

For example, she asked participants to write and present a haiku, a 17-syllable Japanese poetry form to help break their writer's blocks about their inquiries and rationales (See Samaras, 2011). She also utilized pedagogical activities using visually rich digital tools adapted from her work from another transdisciplinary faculty self-study group she co-facilitated (Smith et al, 2018), such as a research knot. Participants were asked to locate a knot which represented a tension and/or a strength in their thinking about their teaching. They were then asked about the knot using a reciprocal interviewing method where they interviewed each other with an observer offering feedback after the interview (see Meskin, Singh, & van der Walt, 2014). Another visual tool utilized was mind mapping where participants sketched a draft of their research design. Interspersed with those activities, the facilitator continued to present and post resources about self-study methodology, including published exemplars of faculty self-study, some authored by members of the research team.

The last group meeting was September 2016 where participants were asked to assess their work and learning about the methodology. After the last meeting, the facilitator engaged in email correspondence with the participants in order to support their work on presentations and publications.

Data Collection

The project met IRB approval, and each of the six participants agreed to be interviewed. Data were collected from multiple and varied sources: (a) individual semi-structured interviews with each of the six participants; (b) memos, artifacts, and visuals created and presented by participants during monthly meetings; and (c) exit slips written by participants at the end of the project. Posters from professional conference presentations where participants shared the results of their self-studies were also examined. Secondary data sources included: (a) notes of seven monthly meetings, (b) notes and recordings of four research team meetings, (c) ongoing analytical memos written by the facilitator, and (d) four individual semi-structured interviews conducted with the facilitator.

After the project ended, one of the research team members conducted six individual semi-structured interviews lasting about 45 minutes with each participant. Another research team member transcribed each interview, as well as an audio recording of a final research team meeting where the research team examined processes and outcomes of the experience. During their individual interviews, participants were asked about their experience in the learning community: what it was like to learn a new methodology, how the experience differed from other

collaborative experiences, what stood out in the group activities, how their participation informed their teaching practice and research, and what contributions were made to and from the group (See Appendix).

The four interviews with the facilitator were about her experiences leading the collaborative and were conducted during the project and at the end of her facilitation; two were conducted by a research team member who was the grant program evaluator, another by a master's degree student studying program evaluation, and another by a doctoral student studying faculty research. The interviews with the facilitator were useful as secondary data sources and aligned with the PAIDIA design element of "Authenticated and Invited Leadership." The facilitator studied her role in leading this collaborative, and that study was reported elsewhere (Samaras, Hjalmarson, Bland, Nelson, & Christopher, 2017).

Data Analysis

The data analysis was informed from the diverse lenses of the transdisciplinary research team from the perspective of a self-study scholar who facilitated the group, from the perspective of the NSF STEM faculty PI and Co-PIs on how this faculty self-study group served to address the larger goals of the grant for STEM faculty development, from the perspective of the grant program evaluator, and from the perspective of a PhD doctoral candidate studying effective teaching in higher education. These multiple perspectives both widened the lens and validity of the analysis to explore the experiences of this faculty self-study group.

The research team worked individually and then collectively to analyze the multiple and varied data with the research questions posed to guide their initial and final analysis. They used pattern coding or "repetitive, regular, or consistent occurrences of action/data" (Saldaña, 2016, p. 5) through cycles of coding and analysis of the data set. For the first cycle of analysis, they shared their identified segments of participant interview comments that addressed the research questions and collectively noted preliminary coding and categories. They then negotiated overlapping categories for the interview data. Additionally, the doctoral student on the research team analyzed and check coded individual interviews. After analyzing participant interviews, a second cycle of analysis entailed using constant comparative analysis (Fram, 2013) analyzing the memos, artifacts, visuals, and exit slips, again with the research questions guiding their analysis and to consider how the data sources added new information. The research team met again collaboratively to discuss their analyses focused on delineating and negotiating categories and connections across the data (Maxwell &

Miller, 2008) and identified preliminary themes (Braun & Clarke, 2006; Butler-Kisber, 2010; Ryan, & Bernard, 2003). They worked as a writing team to draw meaning across the full data set, resulting in four themes with attention to how participants perceived and utilized the faculty self-study group experience to improve their thinking about their teaching.

Results

Analysis from the multiple and varied data sources resulted in the following themes: (1) learning self-study methodology, (2) examining who I am as teacher, (3) collaborating with critical friends, and (4) understanding teaching as research. Each theme is discussed, integrating the reporting and work of participants. Pseudonyms are used.

Learning Self-study Methodology

Learning self-study methodology was novel to participants, and they found it complex to learn. As one participant stated, it was "a very inward kind of form of experimentation" which runs counter to studying others or other kinds of research in STEM. Participants expressed discomfort as they struggled to learn a methodology which required using themselves as subjects and as data–as one expressed "definitely outside my comfort zone!" Vicky indicated:

> …[I]t took me quite a while to realize what self-study was about …[W]hat I did in the group didn't make any sense. I'm an engineer, I want hard data. If it doesn't have data, what's that? … I couldn't understand why are we doing this, and how it is helpful, but after having gone through the process, I can understand.

Reid offered his thoughts in his interview: "It's a different environment where faculty members are talking about reflective practice…and I, you know, have not been in a group that's done that before."

Nonetheless, self-study stretched participants in unfamiliar and useful ways. For example, Becky shared, "What I like about self-study is it can be a lot looser in some ways than what we would do in physics where we would have to have a control group over here and a test group over here." Julia, describing her experience, reflected:

> We had to write about things and talk about things, look at things in a different way. I'd been helped all the way through, but this made me really pause and think about it and, almost analyze where I was, where I'd come from, and what I was doing now. That really did

help me in doing my portfolio [for promotion] and thinking things through and writing things out.

Examining Who I Am as Teacher

This study brings attention to issues of teacher identity in higher education. As Geursen, de heer, Korthagen, Lunenberg, & Zwart (2010) found, it is important for faculty to have opportunities to develop their teacher identities. By investigating their practice, participants discovered a shift from the focus of changing students' actions to changing one's own. Participants expressed that shift as they embraced self-study as "a mechanism for thinking carefully and reflectively" about their role as a teacher and with the group's support. Vicky stated:

> …[T]o look at the process with a much more critical eye…a level of questioning I wasn't even aware existed …the group made me realize that, I was looking at the product, but then I realized it's not just the product, there's this step behind the product that's me designing the product.

There were significant insights about how participants saw themselves as teachers and as researchers with the PAIDIA element of design to dissemination underlying the teaching and research processes. Julia shared her revelation about what it means to teach as a long-time academic:

> I've been thinking about, where am I? Can I just be at homeostasis and just keep doing what I'm doing? Where do I go from here? I'm now full term faculty, and I have this award [for excellence in teaching]. You can't get the award more than once, so for the next part of my career, do I just kind of bum along?

The busy life of academics can throw people into what Vicky calls a "survival mode" instead of teaching by design, as she explained:

> If you ask me to design a heating system, ok, I'm not just going to go and buy two space heaters. Well, I might, but I shouldn't…the first step and then realizing ok, now you're taking not the survivor attitude, but in the designer attitude, and there are rules to designing…that's how my point of view has changed. …The scary part was realizing that I was doing the same mistakes I was telling my students not to do… just making ends meet is not what should be happening if you want to produce a good product. Where I could change my own approach to make this more efficient, so

product, design process, and that's me looking at it. At both things because of this group experience.

Reid explained how self-study "lets you get into what you are thinking as you're getting into how are you structuring things… a hypothesis space…to make tacit knowledge explicit." Participants noticed that they had allowed themselves to explore their teaching and use time in a way that mattered away from "the day to day minutia to thinking about where we need to be goal-wise." Julia stated, "I think the only barrier was allowing yourself to make time for it."

During the process of researching an inquiry about teaching practice, a broader search of "[W]hat am I doing as a teacher?" and "Who am I as a teacher?" were at play. Participation in the collaborative afforded individuals a space and confidence to conduct research about their teaching and talk about what was happening as it unfolded. Julia described that unfolding from her experience:

> It made me think about how to do it and how to do it for me that was different than maybe going to conferences and hearing abstracts and hearing people talk about it like that. This was more, because you were here and you were part of the group, and it was more personal somehow; it kind of made me think that maybe I could do that.

Participants found the visual activities useful, yet challenging, in thinking about their teaching practice. Julia stated:

> The knot thing was really difficult for me to talk about, and it was like, this is really silly, but I ended up being really proud of my knot, and why I had chosen that knot and what it symbolized to me. And when I was doing the portfolio there's like a two-page reflective component and…I finished with sharing my knot (See Figure 3).

Her research knot symbolized her teaching intertwined with her Celtic culture:

> I see the 3-fold symmetry as my roots on the bottom that guide me. One base is my childhood… The second base is my role as a mother and links with my daughters. Both of these give me the strong support (base) I need. On these I build my professional life. The three are separate but combine to make a pattern and are linked in the circle. I also teach mineralogy and I love symmetry, and this is a 3-fold axis with no mirrors.

Collaborating with Critical Friends

Participants reported that learning a systematic method for analyzing their teaching with peers was motivational. Motivation and small group work have been reported as influential in faculty professional development (Gast et al., 2017). The research team was curious about what participants learned from being in the group and what they learned from each other, particularly as it related to the PAIDIA design element of "Integrated Critical Creative Collaboration," as well as "Accountability." What we found was that they each learned and made self-study their own from the questions that mattered most to them. Professional development is useful when faculty see it as useful to them. Faculty members recognized themselves as the designers of their teaching and as pedagogical enactors and yet also appreciated what others contributed to their learning. In this sense, the collaboration and the learning are inextricably linked. Bob appreciated that the group involvement "holds you accountable to show up and talk about what I've been doing… so I better organize my thoughts a bit and attempt to make it make sense to a non-math person."

Figure 3
Julia's Knot

We found data to support that participants valued what they were being offered by critical friends to think more deeply about their teaching and make changes in their actual practice. For Ioulia the group experience "generated new research ideas" and taught her that writing about one's teaching is doable if approached in incremental steps and with a narrowing of a manageable focused topic. She shared that it also informed her leadership in her department in terms of "how constructive peer feedback fuels a collaborative." Becky explained how her work in the group informed her work with her students "to see what they saw and adjust teaching accordingly." Julia also saw an influence:

> Becky had some really good ideas about drawing… And I feel a bit more comfortable doing that now. Sometimes in a science, when you're drawing things out people think "Ah, that's a little bit artsy…", but, it really is good for them understanding the complexity of what's happening, and I like that.

Reid reported how his involvement gave him insight on "how to best mentor students" as he began to better understand self-study research as a "proto-synthesis" or hypothesis space. He invited and supported his students into his research and writing (Cundra, Benzel, & Schwebach (2017). He noted that the group helped him reconsider his work on a research team at a meta-level:

> There isn't that kind of thinking in higher education…I understand working with research teams…having groups of people working together to do an investigation but this isn't like that because it's a research team that's meeting for their own investigations.

Related to their critical friends, the "chemistry" of the group was seen as important.

Participants reported that they offered and received feedback and support during the monthly meetings, but not outside that time, largely due to lack of time. Sharing ideas with others helped trigger new ideas. Ongoing informal presentations of draft papers were reported as key to participants' motivation and support. Inviting self-study colleagues as experts into the meetings with a focused reading was also appreciated and allowed a participant "to see herself writing about her research."

Bob indicated that "the framework [of sharing with critical friends] gave me a little bit of permission not to worry." Vicky, recognizing the value of mistakes for herself and improving learning for others, asserted:

> I understand that I am not the only person in the world who does such things, so probably if someone else wants to do it, knowing that someone went through this and these are the most common mistakes, or at least some mistakes can be pointed out, might save them some trouble.

Vicky's remarks align with the PAIDIA element of "Improved Learning for Self and Others."

Understanding Teaching as Research

The grant was designed with a people-driven focus to meet the needs of faculty, and the PAIDIA framework begins with a Personally Situated Chosen Inquiry. The learning community offered each participant an opportunity to identify an interest in their own teaching and consider how it could be research. The six participants who joined and remained in the collaborative did so because they indicated that they found personal value in the project. Yet, they expressed that they were not very familiar with how to conduct educational research of their teaching. For some, the educational research was grounded in work they were already doing, such as mentoring students or differentiating student learning. Nonetheless, learning and enacting teaching as research would be new learning and with a focus on their role, not on how to change their students.

There were expressions of discovery about how to conduct education research and think about their teaching practice, e.g., "I realized I can approach teaching as research." Moreover, writing educational research was, as one participant explained, "a very different style of writing so it's extremely difficult…and extremely different from what I'm used to." Writing about one's teaching seemed unusual: "I never thought that anybody would really be interested in that, or, I should be writing about that." Ioulia expressed that "the whole thing is humbling. I never thought that teaching could be a research subject."

The PAIDIA framework includes design-disseminate as an element with participants designing an inquiry and then disseminating it. An important component of self-study methodology is to subsequently make the study of practice public with other audiences for further examination and validation, resulting in the PAIDIA design element of "Improved Learning for Self and Others". There were also practical concerns and a desire to publish with tangible products in the form of conference presentations and journal papers. Participants appreciated and utilized the publishing resources the research team provided in a web forum. At the end of the project, each participant either presented or published their self-study of teaching or did both. Collectively, the group presented at the annual teaching conference organized by their

university to highlight innovative teaching practices across campus with a participant leading the poster session. (Nord, et al., 2016). Two other participants presented their research at another conference (Samaras et al., 2017). Another participant presented a poster at an annual engineering education conference (Ikonomidou, Samaras, & Kotari, 2016). This is consistent with the need to find ways for faculty conducting research about their teaching in STEM to find ways to document their scholarship for promotion and tenure (Dolan et al., 2017).

Discussion and Implications

Implications for Using Self-study to Improve Teaching

This study reports on the perspectives of STEM faculty who participated in a self-study faculty learning community designed for improving their teaching. Research questions were focused on participants' experiences in learning and enacting self-study methodology, what they learned about classroom-based self-study research, and the role the collaborative design played in their learning. Data supported that participants learned self-study methodology even though it was unique and complex. Their participation helped them think deeply about their teaching and professional teacher identities, also reported as a major finding by Gast et al., (2017). Participants were able to make linkages between education research and their own teaching while they embraced the problematic nature of teaching as work that is always in development. A critical component of self-study is counter-intuitive in that it fosters deep reflection about one's own teaching practice via the sharing of that practice with critical friends. Faculty reported that working with critical friends did help them reframe their thinking about teaching and understanding teaching as research.

For the research team, the study confirmed the larger grant goal: supporting faculty's small changes in teaching over time can lead to larger changes in building individual and collective capacity. Self-study methodology supported that process. This study also raised new and important questions such as the following:

- "What might learning look like for faculty if there were more faculty self-study learning communities across colleges and disciplines?"
- "What are the opportunities for tenure-track faculty to advance their teaching agendas and scholarly profiles?"
- "How might self-study support the teaching of the increasing numbers of adjunct faculty who most often work alone?"

- "How can departments and colleges better support faculty in these roles to advance excellence in faculty teaching?"
- "What needs to be in place for support and sustainability?"

Self-study research is an untapped portal into exploring such important questions to improve the pedagogy of teaching.

More broadly, this study adds to the existing approaches in faculty professional development using self-study methodology. Considering the large number of students taught by faculty and in the critical need area of STEM, the work of faculty studying their teaching is a needed area of research, as well as is studying those who facilitate it. Uniquely, it adds to the literature related to the learning that can ensue among STEM faculty engaging in self-study as educational research. However, there are broader implications of this study such as designing supportive forums for faculty from other disciplines to have communities in which to study their teaching. It also suggests the importance of rewarding such work.

Implications for Institutions of Higher Education and Future Research

For institutions of higher education, faculty learning communities simultaneously emphasize research and teaching, regardless of discipline, years of teaching, or status. Participants in this study differed in background and experience, although each was interested in improving his or her teaching. Each participant had expressed earlier interest in their teaching through their involvement in the university center for teaching; one had participated in an earlier self-study community, and several had received university awards for teaching. They had demonstrated a persistence in their faculty development−the engaged, enthusiastic, and committed ones. Further research might investigate personal and institutional barriers for those who did not remain in the group and how they might be incentivized to study their teaching.

This study also offers a window into the complexities of supporting teaching in higher education for faculty at different points in their professional careers. There is a great deal of research on the socialization of new faculty in the academic lives (Bond, 2015) but less on those who have been in the academy for a number of years. Further research might explore how faculty are socialized in their teaching at later points of their careers and how those who have been teaching for a number of years may have opportunities to renew their teaching (Blaisdell & Cox, 2004). Noteworthy in this study, term faculty stated that they benefited in working with non-term faculty.

For term faculty it offered them an opportunity to explore their teaching as a research practice since their primary position at the university is teaching. From a practical perspective in terms of faculty evaluations/promotions, engaging in work that produces publications provides evidence of scholarly activity for all faculty. It may be useful to explore the reciprocal benefits of term faculty working with non-term faculty.

As institutions explore new learning environments such as online learning, blended learning, and classroom spaces designed for interactive teaching, self-study allows faculty to examine how they can use these new environments and share their learning with others who are also teaching in these new contexts (Garbett & Ovens, 2017). Similar approaches indicate that institutional support increases the likelihood of genuine faculty development, as well as improves retention, productivity, career agency, and satisfaction (Balmer & Richards, 2012; Gast et al., 2017; O'Meara, Rivera, Kuvaeva1, & Corrigan, 2017). Ultimately, the mission and sustainability of institutions of higher education depend on improving student learning–and that entails supporting collaborative forums for faculty to improve their teaching.

Conclusion

This study contributed key findings to the research base about the use of self-study methodology for faculty development with STEM faculty. Learning self-study methodology acted as a lever to move faculty from the mode of simply applying strategies to developing a mature teaching identity by examining and researching their roles as instructors. However, the active collaboration with critical friends was necessary to motivate faculty to continue to engage reflexivity as instructors and to then conduct research related to their roles as instructors and the changes they were enacting. Thus, self-study methodology provided an avenue for faculty to transcend an externally-oriented development process to an agentive process of continuous improvement focused on one's own role in students' learning beyond simple implementation of a lesson. This model may be useful as a catalyst for developing an advanced teaching trajectory for STEM faculty.

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Appendix

Interview Questions for Participants

1. How does this collaborative experience differ from previous collaborations about teaching, including if you participated in a TDG?

2. Tell us about a critical incident that occurred during your experience with the TIG group. (Probes: Was there a nodal moment or a time when something clicked because of something that happened?)

3. What was your motivation for joining the TIG? (Probes: How were you involved? What made you come and what made your stay?)

4. How has the TIG group informed your teaching practice and/or reframing of your practice in the classroom? (Probes: How did you think the TIG affected your processes for changing your teaching/your scholarship? Affected your choice of changes? How you enacted those changes?)

5. What teaching strategies did your group suggest? (Probes: Did any suggestion stand out as very helpful? In what ways did something change for you as a result of any suggestions?)

6. What do you think your contributions were to the group as a whole and then to your critical friend group?

7. What do you think about the structure and organization of the group's gatherings through the in-person meeting and then virtually through Zoom? (Probes: What feature worked best for you? Why? What did not work so well? Why not?)

8. How likely are you to want to continue to be a part of your critical friend group and then the larger group as a whole? (Probe: In what ways do you see your work continuing with our TIG group?)

9. Do you see this work in self-study scholarship continuing in your practice and in what ways? Why?

10. What outlets and venues have you considered to disseminate your scholarship of self-study to others?

11. Is there anything else you would like to mention that we didn't ask?
Thank you.

Achievement Goal Orientations as Predictors of Self-Regulated Learning Strategies of International ESL Students

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As the number of enrolled international ESL students in the US institutions increases rapidly, it is important to understand these students' goal orientations and learning strategies in order to help them achieve the academic goals. Therefore, this study examines the relationship between achievement goal orientations and self-regulated learning strategies of 173 international ESL students in a large southeastern research institution in the US. Results indicate that approach goal orientations are positively associated with students' self-regulated learning, while avoidance goal orientations are negatively linked with their self-regulated learning. Additionally, international ESL students have a strong intention of learning a specific knowledge as well as showing competitiveness, and these motivations drive them to use various self-regulated learning strategies during the learning process.

The number of international students enrolled in higher education institutions in the US has increased rapidly. In 2015 to 2016, there were 300,741 international students enrolled in colleges in the US, and the top places of origin of those students are China (31.5%), India (15.9%), Saudi Arabia (5.9%), and South Korea (5.8%) ; other places include Vietnam (2.1%), Brazil (1.9%), Japan (1.8%), Mexico (1.6%), and Turkey (1%) (Opendoors, 2016). Among those international students, most of them are also English as a Second Language (ESL) learners. Therefore, challenges such as different cultures and language issues may influence their adaptation and involvement of the academic life in the US institutions (Lin & Wang, 2015).

Studies have explored international ESL students' achievement goal orientations and self-regulated learning strategies for the purpose of improving their academic performance. However, the majority of these studies investigated the aspects focusing on language learning courses, such as English reading or writing classes (Kim, Wang, Ann & Bong, 2015; Sadeghy & Mansourti, 2014; Zarei & Gilanian, 2014). Limited studies have explored college courses in their own majors. As a result, this study aims to investigate the relationship between international ESL students' achievement goal orientations and their self-regulated learning strategies during the learning process in their major college courses.

Literature Review

Achievement Goal Orientations Theoretical Framework

The achievement goal orientation (AGO) theory, which consists of mastery and performance goal orientations, has been widely used to explore the relationship between the orientations and students' academic achievement, adjustment, well-being, and engagement in their academic work (Ames, 1992; Anderman, 2015; Aspinwall & Taylor, 1997; Midgley, Arunkumar, & Urdan, 1996; Nurmi, Salmela-Aro, & Ruotsalainen, 1994). The mastery goal orientation is "a desire to develop competence and increase knowledge and understanding through effortful learning" (Murphy & Alexander, 2000, p. 28), and the performance goal orientation is "a desire to gain favorable judgments of one's competence" (Murphy & Alexander, 2000, p. 28).

Approach and avoidance motivations were later added on to mastery and performance goal orientations (Elliot & McGregor, 2001). A four-factor model of achievement orientations was proposed: mastery approach, mastery avoidance, performance approach, and performance avoidance (Figure 1). According to this 2 x 2 model of AGO, students with mastery approach goal orientation are interested in mastering an academic task, while students holding mastery avoidance goal orientation intend to avoid misunderstanding the academic task. Performance approach goal-oriented students prefer to demonstrate that they are more competent than their peers, whereas performance avoidance goal-oriented students are more interested in avoiding appearing more incompetent than other students. This model has been demonstrated to be a reliable and valid framework (Adesope, Gress, & Nesbit, 2008; Barron, Finney, Davis, & Owens, 2003; Gregg, Jenny, & Hall, 2016; Midgley, Kaplan, & Middleton, 2001).

Self-Regulated Learning

Self-regulated learning is identified as "the self-directive processes and self-beliefs that enable learners to transform their mental abilities, such as verbal aptitude, into an academic performance skill, such as writing" (Zimmerman, 2008, p. 166). Researchers further noted that self-regulated learning strategies involve setting specific goals, utilizing task strategies,

Figure 1

Mastery approach goal orientation (MAP); Mastery avoidance goal orientation (MAV); Performance approach goal orientation (PAP); Performance avoidance goal orientation (PAV). Adapted from "A 2x2 Achievement Goal Framework," by A. Elliot and J. McGregor, 2001, Journal of Personality and Social Psychology, 80, p. 502.

Definition

	Absolute/intrapersonal (mastery)	Normative (performance)
Positive (approaching success)	Mastery-approach goal	Performance-approach goal
Negative (avoiding failure)	Mastery-avoidance goal	Performance-avoidance goal

Valence

displaying high levels of self-efficacy and intrinsic interest, and self-monitoring and self-reflecting on performance outcomes (Zimmerman & Schunk, 2008). Similarly, Pintrich and Garcia (1991) described self-regulated learning as continuous adjustment of learners' cognitive activities and processes to the requirement of a specific learning situation.

Researchers consider self-regulated learners as active learners who always manage their learning experiences efficiently through various methods (Schunk & Zimmerman, 1994). These learners are also identified as autonomous, reflective, and efficient, and they have will and motivation to understand, direct, and control their own learning (Pintrich, 1999; Schunk & Zimmerman, 1994). They set specific learning goals that encourage them to work hard in order to reach these goals, and they modify learning strategies in response to shifting task demands (Butler & Winne, 1995; Pintrich & Garcia, 1991; Schunk, 1994; Zimmerman, 1989). Additionally, self-regulated learners are motivated, independent, and metacognitive, and they usually have a high-level academic performance (Zimmerman, 1990; Zimmerman & Martinez-Pons, 1986). They also actively manage their learning environment and resources during their learning process (Pintrich, 1999; Wolters, 1998).

A self-regulated learning conceptual framework comprised of various self-regulated learning strategies was developed by Pintrich and Garcia (1991) and Pintrich, Smith, Garcia, and McKeachie (1993). This framework aims to evaluate students' motivational orientations and their use of different learning strategies for any college course. Specifically, this model assesses students' use of cognitive and metacognitive strategies, as well as their management of various learning resources.

Cognitive strategies consist of Rehearsal, Elaboration, and Organization. Rehearsal strategies "involve the recitation of items to be learned or the saying of words aloud as one reads a piece of text" (Pintrich, 1999, p. 460), and these strategies assist learners to "select important information from lists or texts and keep this information active in working memory, albeit they may not reflect a very deep level of processing" (Pintrich, 1999, p. 460). Elaboration strategies refer to paraphrasing or summarizing the learning materials and reorganizing and linking ideas from the notes (Mousoulides & Philippou, 2005). Organization strategies involve behaviors such as "selecting the main idea from text, outlining the text or material to be learned, and using a variety of specific techniques for selecting and organizing the idea in the

material" (Pintrich, 1999, p. 460). These strategies would foster active cognitive engagement in learning and then lead to a high level of academic achievement (Weinstein & Mayer, 1986).

Metacognitive and self-regulated strategies are comprised of learners' planning, monitoring, and regulating activities (Zimmerman & Martinez-Pons, 1986, 1988). Learners who employ these types of strategies would often plan their use of cognitive strategies, monitor their thinking and behavior, and use regulating activities to adjust their study behaviors during the learning process.

Resource management strategies refer to how individuals establish conditions that would facilitate their learning (Pintrich & Garcia, 1991). These involve Time and Study environment (TE), Effort Regulation (Effort), Peer Learning (Peer), and Help Seeking (Help). TE refers to how learners manage their study time and learning environment. Effort indicates the degree of learners' commitment to achieving their study goals. Peer represents the frequency of collaborating with peers, and Help shows the frequency of asking classmates or instructors for help during the learning process.

Achievement Goal Orientations and Self-Regulated Learning of International ESL Students

International ESL students have become a special student group in US institutions. Many of them choose to study abroad because they are driven by motivations such as to get to know a different culture, to learn another language, or to access advanced knowledge and skills (Lin & Wang, 2015). Many previous studies noted that college students in the US institutions often adopt mastery approach and performance avoidance goal orientations (Remedios & Richardson, 2013). Similarly, several studies have identified that international ESL students studying in the US display both mastery and performance goal orientations, and they strive for excellence (Shi et al., 2001; Woodrow & Chapman, 2002). For example, Lou and Noels (2016) examined the goal orientations among 150 university-level students in language learning courses and revealed that international ESL students use both mastery and performance approach goal orientations. To be more specific, students who have a strong intention to learn the target language usually have a high level of mastery goal orientations.

Since self-regulated learning is considered to be a significant learner factor that explains both English language learning and academic achievements (Phakiti, Hirsh, & Woodrow, 2013), studies have explored international ESL students' self-regulated learning strategies in order to assist them to enhance their language learning and academic performance (Carrell, 1989; Goh, 2000; Hong-Nam & Leavell, 2006; Iwai, 2011). For

instance, Goh and Foong (1997) noted that metacognitive strategies are used most frequently by international ESL students, while Rehearsal strategies are least used. Similarly, Poole (2005) indicated that international ESL students use cognitive and metacognitive strategies with a medium or high frequency.

Studies have also explored the relationship between achievement goal orientations and self-regulated learning among international ESL students. Duncan and McKeachie (2005) considered goal orientations to be one of the components of motivational self-regulated learning. Sadeghy and Mansouri (2014) indicated that self-regulated learning strategies are significantly associated with both master and performance goal orientations of ESL students. Specifically, Radosevich, Vandana, Yeo, and Deirdre (2004) investigated the relationship between goal orientations and language learning strategies among ESL learners, and they found that goal orientations are positively associated with cognitive self-regulated learning. Zarei and Gilanian (2014) further examined language learning strategies as predictors of achievement goal orientations of foreign language learners. Their results indicated that metacognitive strategies are correlated with mastery goal orientations and could predict approach goal orientations. In addition, social strategies are the best predictors of avoidance goal orientations.

Although international ESL students' achievement goal orientations and self-regulated learning have been investigated, most of these studies focus on their language learning. Therefore, the purpose of this study is to investigate international ESL students' achievement goal orientations and self-regulated learning strategies during their learning process in their major college courses, specifically the prediction power of achievement goal orientations on self-regulated learning strategies. The following research questions are addressed:

1. Which achievement goal orientations are better predictors of Rehearsal?
2. Which achievement goal orientations are better predictors of Elaboration?
3. Which achievement goal orientations are better predictors of Organization?
4. Which achievement goal orientations are better predictors of Metacognitive Self-Regulation?
5. Which achievement goal orientations are better predictors of Time and Environment?
6. Which achievement goal orientations are better predictors of Effort Regulation?
7. Which achievement goal orientations are better predictors of Peer Learning?
8. Which achievement goal orientations are better predictors of Help Seeking?

Methods

Participants

The sample of this study was students enrolled in a large southeastern research institution. Students who identified themselves as international students with English as their second language were collected while others were eliminated. A total number of 241 international ESL students participated in this research with 173 usable respondents (usable rate equals to 72%). Among the participants, 93 (63.3%) were male students and 54 (36.7%) were female students. Most of the participants were enrolled in either Master's programs (37.8%) or Doctoral programs (55.4%), and only 10 participants identified themselves as undergraduate students (6.9%). Additionally, 73% of the participants majored in STEM (science, technology, engineering, and math) fields, such as electronic engineering, math and statistics, and computer science, whereas 27% of the participants were in non-STEM fields, such as communication, finance, and education.

Instrument

Achievement Goal Questionnaire-Revised (AGQ-R). AGQ-R was invented by Elliot and McGregor (2001) and modified by Elliot and Murayama (2008). This instrument is comprised of 12 items with a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). This study modified the 5-point Likert scale to a 7-point Likert scale in order to keep consistent with the MSLQ questionnaire. These 12 items aim to evaluate students' four achievement goal orientations: mastery approach (e.g., My aim is to completely master the material presented in this class), mastery avoidance (e.g., I am striving to avoid an incomplete understanding of the course material), performance approach (e.g., My aim is to perform well relative to other student), and performance avoidance (e.g., I am striving to avoid performing worse than others). The original Cronbach's alpha of achievement goal orientations ranges from 0.84 to 0.94 (Elliot & Murayama, 2008), and the Cronbach's alpha for achievement goal orientations in this study ranges from 0.62 to 0.88.

Motivated Strategies for Learning Questionnaire (MSLQ). The Motivated Strategies for Learning Questionnaire (MSLQ) developed by Pintrich and Garcia (1991) consists of 81 items with a 7-point Likert scale ranging from 1 (not at all true of me) to 7 (very true of me). The MSLQ instrument consists of 15 sections with Cronbach's alpha ranging from 0.52 to 0.93, and these sections are modular, so scholars are allowed to use sections together or individually. Therefore, based on previous literature and the research questions of the study, eight sections of MSLQ were used: Rehearsal (e.g., When I study for this class, I practice saying the material to myself over and over), Elaboration (e.g., When reading for this class, I try to relate the material to what I already know), Organization (e.g., When I study the readings for this course, I outline the material to help me organize my thoughts), Metacognitive Self-Regulation (e.g., When reading for this course, I make up questions to help focus my reading), Time and Study environment (TE) (e.g., I usually study in a place where I can concentrate on my course work), Effort Regulation (Effort) (e.g., I work hard to do well in this class even if I don't like what we are doing), Peer Learning (Peer) (e.g., I try to work with other students from this class to complete the course assignments), and Help Seeking (Help) (e.g., I ask the instructor to clarify concepts I don't understand well). The Cronbach's alpha for those sections in this study ranges from 0.61 to 0.86.

Procedure

An electronic anonymous questionnaire was created and hosted by Qualtrics. Participants were requested to recall a college course they recently took in their major areas and rate their achievement goal orientation and self-regulated learning strategies they used for this course. The Graduate School, Multicultural Center, and International Student Organization assisted in sending the invitation emails with the link to the online survey to students who were enrolled in this university. Two reminders were sent after the initial invitation, with a total of three emails during the spring semester of 2016. Students were also instructed to ignore the survey reminders if they already completed it. This study was approved by the Institutional Review Board (IRB).

Data Analysis

Data was analyzed through the SPSS version 23. Outliers were deleted by examining through Mahalanobis Distance. Multiple regression was used to explore the research questions. The alpha level was set at p equals to 0.05.

Results

R1: Which achievement goal orientations are better predictors of Rehearsal?

A series of multiple regressions using stepwise procedure was conducted to investigate each research question. Results indicate that the level of mastery approach and performance approach goal orientations can predict the level of Rehearsal learning strategy used

$(F_{(2, 159)} = 24.5, p = .02)$. The linear combination of the level of mastery approach and performance approach goal orientations can be accounted by 24% of variance of the level of the Rehearsal learning strategy used ($R^2 = .24$). For every unit the level of mastery approach goal orientation increases, the level of the Rehearsal learning strategy used by students increases by 0.21 unit, whereas the level of performance approach goal orientation remains the same ($\beta = 0.21$, $t = 2.3$, $p < .001$). At the same time, for every unit the level of performance approach goal orientation increases, the level of the Rehearsal learning strategy used by students increases by 0.3 unit while the level of mastery approach goal orientation stays the same ($\beta = 0.3$, $t = 5.1$, $p < .001$). Both mastery approach and performance approach goal orientations have positive relationships with the Rehearsal learning strategy. Results show that students with a higher level of desire in mastering an academic task or in demonstrating that they are more competent than their peers often use memorized related study strategies. In other words, students who have a stronger desire to learn an academic task or to show that they are more competent than their classmates would often use strategies such as memorizing the terms or words by reading aloud in order to select important information from those lists or texts, and then they would keep this information active in working memory.

R2: Which achievement goal orientations are better predictors of Elaboration?

Results indicate that the level of both mastery approach and avoidance goal orientations are good predictors of the level of the Elaboration learning strategy used ($F_{(2, 157)} = 35.9$, $p < .001$). The linear combination of the level of mastery goal orientations can be accounted by 32% of variance of the level of the Elaboration learning strategy used ($R^2 = .32$). For every unit the level of mastery approach goal orientation increases, the level of the Elaboration learning strategy used by students will increase by 0.61 units when the level of mastery avoidance goal orientation stays the same ($\beta = 0.61$, $t = 8.3$, $p < .001$). For every unit the level of mastery avoidance goal orientation increases, the level of the Elaboration learning strategy used decreases by 0.13 unit while the level of mastery approach goal orientation remains the same ($\beta = -0.13$, $t = -2.6$, $p = .01$). Data shows that the mastery approach goal orientation has a positive relationship with Elaboration, while the mastery avoidance goal orientation has a negative relationship with this strategy. Students who have a higher level of desire in mastering an academic task would more often use strategies associated with paraphrasing or summarizing learning materials, while those who try to avoid misunderstanding an academic task are less often using these strategies.

R3: Which achievement goal orientations are better predictors of Organization?

Results show that only the level of mastery approach goal orientation can predict the level of Organization learning strategy used ($F_{(1, 157)} = 44.5$, $p < .001$). The linear combination of the level of mastery approach goal orientation can be accounted by 22% of variance of the level of Rehearsal learning strategy ($R^2 = .22$). Meanwhile, for every unit the level of mastery approach goal orientation increases, the level of Organization learning strategy used by students increases by 0.48 unit ($\beta = 0.48$, $t = 6.7$, $p < .001$). Mastery approach goal orientation is positively associated with the Organization learning strategy. Results note that students who have a higher level of desire in mastering an academic task more often use learning strategies such as selecting main ideas from text, outlining the text or material to be learned, and using various specific techniques for selecting and organizing ideas in the material.

R4: Which achievement goal orientations are better predictors of Metacognitive Self-Regulation?

Results reveal that the level of mastery approach and avoidance goal orientations can predict the level of the Metacognitive Self-Regulation learning strategy ($F_{(2, 159)} = 38.8$, $p < .001$). The linear combination of the level of mastery goal orientations can be accounted by 31% of variance of the level of this learning strategy used ($R^2 = .31$). For every unit the level of mastery approach goal orientation increases, the level of Metacognitive Self-Regulation learning strategy used by students increases by 0.47 unit when the level of mastery avoidance goal orientation remains the same ($\beta = 0.47$, $t = 8$, $p < .001$). At the same time, for every unit the level of mastery avoidance goal orientation increases, the level of the Metacognitive Self-Regulation learning strategy used by students decreases by 0.08 unit while the level of mastery approach goal orientation stays the same ($\beta = 0.08$, $t = -2$, $p = .04$). Data shows that the mastery approach goal orientation has a positive relationship with the Metacognitive Self-Regulation learning strategy while mastery avoidance goal orientation is negatively associated with this strategy. Students who have a higher level of desire in mastering an academic task more often use strategies such as planning their use of cognitive strategies, monitoring their thinking and behavior, and using regulating activities to adjust their study behaviors during the learning process while those who desire to avoid misunderstanding an academic task less often use these learning strategies.

R5: Which achievement goal orientations are better predictors of Time and Environment

According to the results, the level of mastery approach and performance avoidance goal orientations can predict the level of Time and Environment (TE) strategy ($F_{(2, 159)} = 11.5$, $p < .001$). The linear combination of the level of these two orientations can be accounted for by 13% of variance of the level of TE strategy ($R^2 = .13$). For every unit the level of mastery approach goal orientation increases, the level of TE strategy used by students increases by 0.31 units, whereas the level of performance approach goal orientation remains the same ($\beta = 0.31$, $t = 4.5$, $p < .001$). Additionally, for every unit the level of performance avoidance goal orientation increases, the level of TE strategy used by students decreases by 0.12 unit while the level of the mastery approach goal orientation stays the same ($\beta = -0.12$, $t = -3.2$, $p = .002$). Data display that the mastery approach goal orientation is positively associated with TE strategy while performance avoidance goal orientation has a negative relationship with this strategy. Results reveal that students who have a stronger desire in mastering an academic task more often manage their study time and learning environment while those who prefer to avoid showing that they lack the skills in learning the course less often manage their study time and learning environment.

R6: Which achievement goal orientations are better predictors of Effort Regulation

Results indicate the level of mastery approach and performance avoidance goal orientations can predict the level of Effort Regulation (Effort) strategy used ($F_{(2, 159)} = 10.5$, $p < .001$). The linear combination of the level of these two orientations can be accounted for by 12% of variance of the level of the Effort strategy ($R^2 = .12$). For every unit the level of mastery approach goal orientation increases, the level of Effort strategy increases by 0.32 unit, whereas the level of performance avoidance goal orientation remains the same ($\beta = 0.32$, $t = 3.7$, $p < .001$). Meanwhile, for every unit the level of performance avoidance goal orientation increases, the level of Effort strategy used by students decreases by 0.2 unit when the level of mastery approach goal orientation stays the same ($\beta = -0.2$, $t = -4$, $p < .001$). Results show that the mastery approach goal orientation has a positive relationship with Effort strategy while performance avoidance goal orientation is negatively associated with this strategy. Students who have a stronger desire to master an academic task often have a higher level of commitment to achieving their study goals while students who try to avoid showing that they lack the skills in learning the course have a lower level of commitment to accomplishing their study goals.

R7: Which achievement goal orientations are better predictors of Peer Learning?

Results imply that the level of both mastery approach and performance approach goal orientations can predict the level of Peer Learning (Peer) strategy ($F_{(2, 156)} = 13$, $p < .001$). The linear combination of the level of mastery approach and performance approach goal orientations can be accounted by 15% of variance of the level of Peer strategy used ($R^2 = .15$). For every unit the level of mastery approach goal orientation increases, the level of Peer strategy used by students increases by 0.34 unit, whereas the level of performance approach goal orientation remains the same ($\beta = 0.34$, $t = 3$, $p < .001$). For every unit the level of performance approach goal orientation increases, the level of Peer strategy used by students increases by 0.19 unit while the level of mastery approach goal orientation stays the same ($\beta = 0.19$, $t = 2.6$, $p < .001$). Both mastery approach and performance approach goal orientations are positively associated with Peer strategy. Results show that students who have a stronger desire in mastering an academic task, or those who prefer to demonstrate that they are more competent than their classmates, more often use strategies such as collaborating with their peers during learning.

R8: Which achievement goal orientations are better predictors of Help Seeking?

Results show that only the level of mastery approach goal orientation can predict the level of Help Seeking (Help) strategy ($F_{(1, 158)} = 13$, $p < .001$). The linear combination of the level of mastery approach goal orientation can be accounted by 10% of variance of the level of Rehearsal learning strategy used ($R^2 = .10$). Additionally, for every unit the level of mastery approach goal orientation increases, the level of Help strategy used by students increases by 0.25 unit ($\beta = 0.25$, $t = 3.6$, $p < .001$). Data notes that mastery approach goal orientation has a positive relationship with Help strategy. Results demonstrate that students with a stronger desire in mastering an academic task prefer asking their classmates or instructors for help during the learning process.

Discussion

This study indicates that approach goal orientations are positively associated with self-regulated learning strategies while avoidance goal orientations are negatively associated with self-regulated learning strategies. To be more specific, mastery approach goal orientation predicts all self-regulated learning strategies. International ESL students use various learning strategies during the learning process because

Table 1
Multiple Regression Results

Research Questions	DV	R^2	F	df	p	Predictors	β	t	p
R1	Rehearsal	0.24	24.5	2,159	<.001	MAP	0.21	2.3	0.02
						PAP	0.3	5.1	<.001
R2	Elaboration	0.32	35.9	2,157	<.001	MAP	0.61	8.3	<.001
						MAV	-0.13	-2.6	0.012
R3	Organization	0.22	44.5	1,157	<.001	MAP	0.48	6.7	<.001
R4	Metacognitive Self-regulation	0.31	34.8	2,159	<.001	MAP	0.47	8	<.001
						MAV	-0.08	-2	<.001
R5	Time and Environment	0.13	11.5	2,159	<.001	MAP	0.31	4.5	<.001
						PAV	-0.12	-3.2	0.002
R6	Effort Regulation	0.12	10.5	2,159	<.001	MAP	0.32	3.7	<.001
						PAV	-0.2	-4	<.001
R7	Peer Learning	0.15	13	2,156	<.001	MAP	0.34	3	0.003
						PAP	0.19	2.6	0.01
R8	Help Seeking	0.1	13	1,158	<.001	MAP	0.25	3.6	<.001

MAP: Mastery approach goal orientation; MAV: Mastery avoidance goal orientation;
PAP: Performance approach goal orientation; PAV: Performance avoidance goal orientation.

they may desire to seek specific knowledge or skills. These findings echo previous studies indicating that international students studying abroad prefer to learn advanced knowledge and skills (Lin & Wang, 2015). Another possible reason for international ESL students to try hard to succeed is because they do not want to disappoint their families since sending a child to study abroad would be a big economic effort for many families. More research should be investigated regarding this hypothesis. Besides, mastery avoidance goal orientation is significantly linked to students' use of self-regulated learning, and this result mirrors previous studies that both mastery approach and avoidance goal orientations are associated with self-regulated learning strategies (Zarei & Gilanian, 2014). However, international ESL students who have a high level of mastery avoidance goal orientation often less frequently use self-regulated learning strategies such as Elaboration and Metacognitive Self-Regulation, while these strategies were considered to be deep-processing learning strategies (Pintrich, 1999). As a result, this finding indicates that some international ESL students intend to avoid making mistakes when learning and applying specific knowledge, whereas this intention demotivates them to use deep self-regulated learning strategies.

Besides mastery goal orientations, performance goal orientations influence international ESL students' adoption of self-regulated learning. Results of Effort Regulation show that performance avoidance goal orientation significantly correlates with international ESL students' commitment to completing their study goals. Especially, students who try to avoid being considered as lacking the skills of learning specific knowledge are less committed to achieving their study goals. Similarly, those who hold this goal orientation spend less time on learning and managing their study environment. On the contrary, performance approach goal orientation is positively linked to international ESL students' use of self-regulated learning strategies, such as Rehearsal. Contrary to previous studies that social strategies are associated with avoid goal orientations (Zarei & Gilanian, 2014), this study argued that Peer Learning is positively correlated with performance approach goal orientation. In other words, students who try to show that they are more competitive than their peers are willing to study with their classmates more often.

In conclusion, the findings of this study illustrate that both mastery and performance goal orientations influence international ESL students' self-regulated learning. Similar to conclusions that ESL learners have

a strong intention to learn the target language in a language course (Lou & Noels, 2016), international ESL students were found to have a strong intention to learn the target knowledge in their major college courses in this study. Moreover, it is possible that international ESL students are often influenced by peer pressure as they may try to keep a good image in front of their classmates. They intend to show that they are more competitive than others, and this desire motivates them to collaborate with their peers more often. However, their intention of avoiding being considered noncompetitive reduces their commitment level of achieving study goals, as well as demotivating them to spend more time on studying during the learning process. More research is needed to investigate whether peer pressure contributes to international ESL students' use of self-regulated learning strategies.

Implications and Limitations

According to the findings, both mastery and performance goal orientations are linked with international ESL students' use of self-regulated learning regarding learning college courses in their majors. Specifically, approach goal orientations would motivate these students' self-regulated learning, while avoidance goal orientations demotivate them to adopt self-regulated learning strategies. Therefore, in order to enhance international ESL students' motivations to seek knowledge and then to further encourage them to use deep learning strategies more often, instructors should consider informing them of the meaningfulness of learning a course in the first class. Additionally, for international ESL students who are willing to take responsibility for their own learning, direction, and productivity, as well as planning their study time to accomplish their study goals, instructors should consider cultivating their ability to learn. For example, instructors may consult with these students to develop their learning materials and strategies such as timetables and management charts for projects they develop. Instructors may also consider meeting with these students regularly to discuss their progress and difficulties during the learning process. Collaboration and competition would positively raise international ESL students' motivations for learning since they enjoy working with their classmates, as well as being considered competitive. Therefore, instructors may consider assigning group activities or team work projects to encourage collaborations. Additionally, a proper use of competition in class, e.g., trivia contests and other short-term competitions, would be effective in enhancing these students' learning interests for a solely symbolic reward, and there can be lighthearted challenges between groups where there is no reward. However, instructors should plan any competition activities carefully and properly to avoid demotivating students.

Several limitations existed in this study. First, this study centered on a self-reported questionnaire which relies on the honesty of the participants, and some participants may lack the introspective ability to provide an accurate response to a question. However, outliers were examined and deleted, and the Cronbach's alpha shows the reliability of the data. Yet, future research should involve qualitative studies such as focus groups or interviews to further investigate these two components, and results may serve as evidence or arguments about the current study. Second, the majority of the participants were enrolled in graduate programs, hence results may not represent undergraduate international ESL students' achievement goal orientations and self-regulated learning. Similarly, since most of the participants were male students and many participants were studying in STEM areas, bias may exist, and results may not properly reflect the perspectives of female international ESL students, as well as those majoring in non-STEM fields. Additionally, information was gathered from participants in a large southeastern research university, therefore data may not represent all international ESL students in the US institutions. As a consequence, more students from different programs and universities should be recruited. Finally, factors such as gender and degree-seeking programs should be included for the purpose of examining the differences in achievement goal orientation and self-regulated learning among international ESL students, in order to better understand and serve this growing student group, as well as helping them enhance their academic performance.

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Student Perceptions of Responsibility for Their Own Learning and for Supporting Peers' Learning in a Project-based Learning Environment

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While a common refrain among some educators is that many young adults lack personal responsibility for learning, little empirical research exists that examines how tertiary students perceive or operationalize this construct. This research investigated how 124 freshman engineering students perceive responsibility in terms of what responsibility means, its benefits, and the factors that contribute to their own and peers' learning. Students were surveyed in two project-based learning Communication courses. The survey sought to identify a) students' perception of responsibility for their own learning and for supporting the learning of their peers, b) particular aspects of the courses that contribute to students' development of responsibility, and c) the effect responsible behavior has on their own and peers' learning. Results indicate that most students: 1) believe that they have more responsibility for their own learning than the need to support their peers' learning; 2) can identify particular tasks and assignments that require them to be responsible for their learning; and 3) can recognize the benefits of being responsible for their own learning and for supporting their peers' learning, but do not always operationalize this understanding. Results are discussed and recommendations are made as to how to develop students' personal responsibility in team-based courses.

If perceptions matter, then the way students perceive personal responsibility and its impact on learning is an area that deserves special attention. This is because some educators argue that many young adults entering the university lack a sense of personal responsibility for their learning and are unaware of how their attitude and behavior impacts the learning of others. This has been linked to a number of detrimental consequences, including poor interpersonal communication, negative teaming experiences, and unproductive learning opportunities (Dallas & Hataaka, 2016; Deveci & Ayish, 2017a). In addition, the literature is rich in documenting how individual responsibility contributes to individual students' academic performance. However, there is a lack of research that explores students' responsible behaviors and the effect this behavior has on peers. There is also relatively little analysis of students' responsible behaviors in learning environments based on the principles of project-based learning (PBL). In order to address these and other issues, we believe it is necessary to better understanding how students perceive personal responsibility.

Personal responsibility can be defined as "people[s' skill of] taking individual accountability for their decisions and actions, together with the outcomes they create and their impacts on others" (Linley & Maltby, 2009, p. 685). While many factors can influence how one perceives this complex concept, from culture to age, this definition fits the context of our study best because it takes into consideration that students are active agents of their own learning and their actions directly affect peers. This is especially true given that students in our study work with peers on

projects in a PBL environment. In this study, we investigate these issues with specific attention to freshman students' perceptions of their responsibility for learning and the need to support the learning of their peers. To this end, we first review the relevant literature related to the role of responsibility in the learning process. We then describe how responsibility manifests itself in PBL environments and whether or not gender plays a role in students' responsible behaviors. This is followed by a section explaining our teaching context and the rationale for the study.

The Relationship between Personal Responsibility and Learning

The relationship between personal responsibility and learning has been examined extensively (Bandura, 1993; Cook-Sather & Luz, 2015; Kohns & Ponton, 2006). Some researchers, for example, argue that a common trait among successful learners is that they take an active role in ensuring that their needs are met and sustained over time (Alghamdi, 2016; Setiyadi, Sukirlan & Mahpul, 2016). Others suggest that personal responsibility can lead to life-long learning by overcoming many of the challenges inherent in developing deeper and more meaningful learning opportunities over time (Deveci & Ayish, 2017a; Jiusto & DiBiasio, 2006). Indeed, it has been shown that being responsible for one's learning is essential for academic, personal, and professional growth and success (Ning & Downing, 2012). For example, developing personal responsibility positively contributes to one's well-being, self-esteem (Cho & Hongsik, 2015; Deveci & Ayish, 2017b), and psychological health (Ruthig, Haynes,

Stupnisky & Perry 2009) by empowering individuals to take ownership over behaviors and actions.

Not surprisingly, many students readily acknowledge that they are responsible for their own learning and that such responsibility can lead to success in many aspects of their lives. Yet there is a seeming disconnect between what students recognize as important and beneficial and what they actually practice. As our previous study investigating the relationship between personal responsibility and interpersonal communication at our university suggests, while many students acknowledge the importance and benefits of being responsible for their own learning, they do not necessarily act in ways that demonstrate this understanding (Deveci & Ayish, 2017b). Although there are complex reasons for this, from a lack of experience with personal responsibility to feelings of inadequacy, a central factor, as Zimmerman (2002) notes, is that many students have not developed the ability to self-regulate. According to Zimmerman (2002), "Self-regulation refers to self-generated thoughts, feelings, and behaviors that are oriented to attaining goals" (p. 65). As a concept, self-regulation is inextricably linked to what it means to be responsible for one's learning (Alvi, Iqbal, Masood, & Batool, 2016; Kizil & Savran, 2016). Unfortunately, for most, self-regulation does not just happen over time as one matures, but must be explicitly developed (Nejabati, 2015; Tuckman & Kennedy, 2011). Educators, in particular, can play a central role in teaching students how to self-regulate and, ultimately, be responsible for their learning (Nejabati, 2015; Tuckman & Kennedy, 2011; Zimmerman & Schunk, 2012). This can occur in a number of ways, including through structured opportunities such as PBL.

Project-based Learning and Personal Responsibility

Project-based Learning (PBL) has been adopted by a wide-range of educational institutions as an effective framework to help students develop soft-skills and real-world competencies (Allen, Donham & Bernhardt, 2011). As a student-centered, inquiry-based instructional model, PBL shifts the role of the instructor to that of a facilitator and the responsibility for learning to the student (Onyon, 2012). Learners then engage with an authentic problem that requires further research in a team-based environment (Murray & Summerlee, 2007).

Successful PBL is partly dependent on students taking personal responsibility for their behavior and learning (Abraham, Hassan, Ahlam Damanhuri, & Salehuddin, 2016; Murray & Summerlee, 2007). Studies suggest that PBL contributes to students assuming responsibility for their own learning and the need to help peers learn (Dochy, Segers, Bossche & Struyven, 2005; Savery, 2006). However, conflict among team members stemming from poor communication, unequal work distribution, slacking, social loafing, and free-riding often arise when a team member does not take responsibility for his or her behavior (Brooks & Ammons, 2003; Jassawalla, Malshe, & Sashittal, 2008; Pieterse & Thompson, 2010). The consequences of such behaviors often lead to dysfunctional teams where infighting and overall poor performance negatively impacts the teaming experiences of members. Indeed, many students report that they prefer to work alone rather than in teams because of past negative teaming experiences (Pieterse & Thompson, 2010; Tucker & Abbasi, 2016). Self-regulation, therefore, plays an essential role in ensuring that team members contribute positively to team efforts and take responsibility for their learning (Dierdorff & Ellington, 2012; González-Fernández et al.,2013).

The Impact of Personal Responsibility

Personal responsibility has been shown to have a positive impact on learning (Macaskill & Denovan, 2013). When individuals take responsibility for their learning, for example, learning is enhanced because it is not left up to chance (Larmar & Lodge, 2014; Stupnisky, Renaud, Daniels, Haynes, & Perry, 2008). Such self-directed learning encourages individuals to develop a sense of agency that can help sustain their growth and development over time (Fishman, 2014). Indeed, "students recognise that the quality of their experience does not simply hinge on what they are provided with, but is also linked with their own effort and engagement with their courses" (Soilemetzidis, Bennett, Buckley, Hillman, & Stoakes, 2014, p. 38). This finding is particularly noteworthy because it suggests that students, rather than being passive recipients of knowledge, have a vested interest in their learning. In addition, as Anderson and Prawat (1983) posit, those who feel in control are more likely to take responsibility for their own learning. However, as Soilemetzidis et al. point out, in order to ensure that students are able to fulfill their inherent role in the learning process, "institutions have a vital responsibility to facilitate and ensure effort, engagement, interaction and active, and deep learning" (2014, p. 10). Such a joint effort and a sense of responsibility between students and institutions can help facilitate meaningful and sustained learning. Others have also found such partnerships effective and necessary for learning to thrive over time (Kuh, Laird & Umbach, 2004; Tinto, 2010).

Personal responsibility has also been shown to positively impact individuals psychologically, leading to a number of benefits, including greater self-esteem, improved relationships, and more effective interpersonal communication (Caprara et al., 2008; Di Giunta et al., 2013), as well as enhanced intrinsic work motivation and job performance (Humphrey, Nahrgang,

& Morgeson, 2007). While research has established the many benefits of personal responsibility across a number of domains, the way students perceive personal responsibility is less known and has received less attention, especially in our regional context.

Student and Teacher Perceptions of Personal Responsibility and Learning

Overall, little research exists that explores student or teacher perceptions of personal responsibility (Lauermann & Karabenick, 2014). Part of the issue likely stems from the way researchers attempt to measure personal responsibility. For example, as Lauermann and Karabenick (2013) point out, researchers tend to ask questions that are general in nature rather than specific to students or teachers. For example, rather than ask teachers to affirm, "I feel responsible for my students' learning," they are often asked to affirm, "I can help my students learn." Consequently, as a number of researchers suggest, such studies do not offer insight into how students or teachers perceive personal responsibility (Biesta, Priestley, & Robinson, 2015; Eka, 2014). This is surprising given the recognition that the way one perceives personal responsibility directly affects their learning and the learning of those with whom they engage. This study aims to help fill the gap in this area.

Role of Gender on Personal Responsibility

Little research also exists in the area of gender and responsibility, especially in our regional context. While our experience teaching the same subjects to males and females on segregated campuses at our institution suggests that female students tend to be more personally responsible, research suggests that there is often little difference between the two genders (André and Mandigo, 2013). Given that the concept of personal responsibility is highly contextual and culturally bound, teasing out differences between genders is difficult. For example, Cesur and Ertas (2013) found that females were more responsible than males in planning what to study, adjusting how they learn, and correcting errors in their assignments, while Üstünlüoğlu (2009) reported that females demonstrated more responsibility in terms of participation related to autonomous language learning. However, other studies revealed that there are no statistical differences between gender and personal responsibility behaviors (Edgar, 2015; Severiens & Dam, 2012). Given that gender, at times, impacts responsibility points to the complexity of the relationships that exists between these two variables

and the need to better understand this relationship across domains.

Our Context, Rationale for the Study, and Research Questions

We conducted this study at the Petroleum Institute (PI)[1], an engineering university located in Abu Dhabi, the United Arab Emirates, which offers undergraduate and graduate degrees in various engineering disciplines. PI's mission is to provide the oil, gas and energy sectors in the UAE with talented and well-balanced engineers to contribute to the country's social and economic development. With this aim in mind, the university recruits nearly 500 students a year. Currently, it has approximately 1,960 graduate and undergraduate students (evenly split between males and females) on segregated campuses. All students are on full scholarships. The vast majority of students, Emirati nationals, also receive a monthly stipend if they maintain good academic standing.

Our study came about after our personal observation that many freshman engineering students enrolled in two required project-based learning (PBL) Communication courses seemed to lack a sense of personal responsibility for their learning or were unaware of the impact such a lack of personal responsibility has on the learning of their peers. It also builds on our earlier research that examined the relationship between personal responsibility and interpersonal communication (Deveci & Ayish, 2017b). Results from this study indicated that conflicts stemming from poor interpersonal communication often led to poor teaming and performance. We believe, therefore, that understanding how students perceive personal responsibility, especially within a PBL environment, offers the possibility of improving instruction and the learning and teaming experience of students. This is particularly important because PBL is a widely-used instructional model found across the globe. Although research offers insight into the relationship between personal responsibility and learning, less is known about how students perceive responsibility, as well as what students' sense of responsibility is for supporting their peers' learning. Part of our study sought to better understand these important aspects of personal responsibility and learning. With these points in mind, this research aims to answer the following questions:

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[1] PI has merged with Masdar Institute and Khalifa University of Science and Technology since completing this study.

1. a. To what extent do students feel responsible for their own learning and for supporting their peers' learning?
    b. Do student perceptions change according to gender and course attended?
2. According to students, what aspects of their Communication course requires them to be responsible for their own learning and for supporting their peers' learning?
3. How do students perceive the effects of responsible behavior on their own and peers' lives?

Method

Participants

One hundred and twenty-four freshman engineering students participated in the study. Sixty-eight (55%) were COMM 101 students, while 56 (45%) were COMM 151 students. Twenty-one (17%) students were male, and 103 (83%) were female. Their ages ranged between 17 and 22, with a mean age of 19.

Data-gathering Instrument: Questionnaire on Responsibility (QRIC) for students

We designed this questionnaire to identify a) students' perception of responsibility within the domain of the two PBL courses at our university, b) particular aspects of the two courses that contribute to students' development of responsibility, and c) the effects of their responsible behaviors on their peers' learning (See Appendix).

The survey included Likert-type questions in which respondents ranked how they feel. The first section included two questions: "To what extent do you feel you are responsible for your own learning?," and, "To what extent do you feel you are responsible for supporting your peers' learning in COMM class?" The second section asked students to indicate the extent to which a list of tasks and assignments in their Communication course require them to be responsible for their own learning and for supporting their peers' learning. These included in-class writing examinations (IRWAs), an individual literature review/source summary, close reading assessments (CRAs), a team literature review, a proposal, team research report, team presentation, team

meetings, and personal development portfolio. The last section asked students to indicate the extent to which they agreed with a list of benefits of being responsible that apply to themselves and their peers.

The validity of the instrument was comprised of several stages. First, we drafted the questionnaire ourselves based on the literature on the topic as well as on our own teaching experience with a consideration of all relevant domains as suggested by Greco, Walop, and McCarthy (1987). In order to increase its validity, we also had two other faculty members in our department examine the instrument. The questionnaire was revised and improved based on their feedback.

We also computed the Cronbach Alpha test for each of the main sub-sections of the questionnaire sections 2 and 3). The Cronbach Alpha computed for the sub-section on factors contributing to students' feeling of responsibility for their own learning was found to be 0.803, while it was found to be 0.832 for factors contributing to their feeling of responsibility for their friends' learning. On the other hand, the Cronbach Alpha was 0.74 for the effects of responsible behavior on own learning, and 0.864 for the effects of responsible behavior on peers' learning. Collectively, these indicate that the questionnaire was reliable.

Analyses

We analyzed the data collected using IBM SPSS (Version 22.0) (SPSS Inc., Chicago, USA). Descriptive statistics including frequencies, mean, minimum, and maximum were used to describe the data. Students' t-tests were used to determine the significance levels of the participants' feelings that they are responsible for their own learning and for supporting the learning of their peers. A p-value of 0.05 was considered statistically significant.

Results

Part one of the first research question was related to the extent to which students perceived themselves as responsible for their own learning and for supporting their peers' learning in their Communication class. Table 1 shows the results of data analysis for this question.

Table 1
Students' Perceived Level of Responsibility for Their Own Learning and for Supporting Peers' Learning

	N=124					
	Max	Min	$\bar{x}$	SD	t	p
I am responsible for my own learning.	5	2	4.29	.68		
I am responsible for supporting my peers' learning in my COMM class.	5	1	3.57	.91	7.0042	.0000

p< .05

Table 2
Students' Perceived Level of Responsibility for Their Own Learning and for
Supporting Peers' Learning According to Gender

	Male N=35				Female N=89					
	Max	Min	$\bar{x}$	SD	Max	Min	$\bar{x}$	SD	t	p
I am responsible for my own learning.	5	2	4.1	.73	5	3	4.3	.66	1.592	.0569
I am responsible for supporting my peers' learning in my COMM class.	5	1	3.69	.9	5	1	3.53	.91	.8037	.2115

p< .05

Table 3
Students' Perceived Level of Responsibility for Their Own Learning and for
Supporting Peers' Learning According to Course

	COMM101 N=96				COM151 N=28					
	Max	Min	$\bar{x}$	SD	Max	Min	$\bar{x}$	SD	t	p
I am responsible for my own learning.	5	3	4.3	.67	5	2	4.2	.75	.4224	.3367
I am responsible for supporting my peers' learning in my COMM class.	5	1	3.54	.92	5	1	3.63	.9	.6445	.2602

Table 1 shows that the students' responses regarding how responsible they felt for their own learning ranged between a little (2) and a lot (5) with a mean of 4.29. This indicates that students have a fairly strong tendency towards taking responsibility for their own learning. However, a more detailed analysis of student responses revealed that only 42% of the students felt they were fully responsible for their own learning. Interestingly, a larger number of students (47%) thought they had a lot of responsibility (4) for their learning, while 13 students (10%) thought they had only a little responsibility for their learning. Only one student thought s/he had no responsibility. When these data are compared to students' thoughts on the extent to which they felt they were responsible for peers' learning, the average is 3.57. The difference between the two statements was also at a statistically significant level (p=.000<.05), indicating students' comparatively reduced tendency for accepting responsibility for supporting their peers' learning. The range of responses varying from 5 to 1 (SD=.91) also supports this finding. A more detailed analysis of student responses showed that four students (3%) believed they had no responsibility for their classmates' learning, seven students (6%) had little responsibility, and 43 students (35%) had an average amount. These findings suggest that students tend to perceive that they have more responsibility for their own learning than they do for supporting their peers' learning.

Part two of the first research question was related to student perceptions and if their perceptions changed according to gender and course attended. Analysis of the data to determine if gender and course played a role in students' responses can be seen in Tables 2 and Table 3 below.

As can be seen in Table 2, the female students' responses regarding agency for their own learning ranged between 5 and 3 (SD=.66) with a mean of 4.3. The range in the male students' responses was greater with a standard deviation of .73 and a mean of 4.1. However, the difference between the two data sets was not at a statistically significant level (p=.0569>.05). In terms of responsibility for supporting peers' learning, the male students' average was slightly higher (3.69 vs. 3.53) with a similar range between responses. However, the difference was not statistically significant.

On the other hand, Table 3 shows that COMM 101 students' average rating for responsibility for own learning was slightly higher than that of COMM 151 students' (4.3 vs. 4.2) with a lower standard deviation (.67 vs .75). However, the t-test conducted to determine the level of significance between these data sets yielded a negative result (p=.3367>.05). On the other hand, COMM 151 students had slightly more tendency towards responsibility for supporting their peers' learning despite a lack of statistical difference between the student responses. The second research question asked respondents to consider what aspects of their Communication course required them to be responsible

Table 4
Factors Which Contribute to Students' Feeling of Responsibility for Their Own
Learning and for Supporting Peers' Learning

Factors	For own learning				For supporting peers' learning					
	Max	Min	$\bar{x}$	SD	Max	Min	$\bar{x}$	SD	t	p
IRWA	5	2	4.44	.81	5	1	2.53	1.39	13.3559	.0000
Individual literature review	5	1	4.32	.83	5	1	2.5	1.36	-10.4002	.0000
CRA	5	1	4.1	1	5	1	2.5	1.4	10.5949	.0000
Team literature review	5	2	3.9	.75	5	1	3.94	.89	.3845	.3504
Proposal	5	2	4	.7	5	2	4.03	.76	-.4321	.333
Team research report	5	2	4.12	.75	5	2	4.19	.7	.7864	.2162
Team presentation	5	2	4.17	.77	5	2	4.12	.8	.4878	.313
Team meetings	5	1	4.1	.9	5	1	4.03	.92	-.4865	.3135

p< .05

for their own learning and for supporting peers' learning. The summary of results for this question can be seen in Table 4.

Table 4 shows the students' tendency to think that individual assignments (e.g., individual reflective writing assessments, individual literature reviews, and careful reading assignments) had a much greater effect on the development of personal responsibility for their own learning in comparison to supporting their peers' learning. There were marked differences between the averages for each of these factors (4.44 vs. 2.53, 4.32 vs. 2.5, and 4.1 vs. 2.5 respectively) with differences at statistically significant levels (p=.0000<.05). On the other hand, the team assignments (i.e., team literature review, proposal, team research report, team presentation, and team meetings) received similar ratings related to their effects on student development through personal responsibility for their own learning or supporting peers' learning. The impact of these factors was evaluated to be relatively strong with the student ratings of > 4 for all factors except the team literature review which received a rating of 3.9 for own and 3.94 for peers' development of responsibility behavior. This similarity relative to the student thoughts on the effect of team assignments was supported by the lack of statistical significance between the scores (p=.3504>.05, p=.333>.05, p=2162>.05, p=.313>.05, p=3135>.05 respectively).

When we analyzed which factors were considered to have the most effect on a student's or peers' learning, individual reflective writing assessments with a rating of 4.44 were perceived as contributing the most to a student's feeling of responsibility for their learning. On the other hand, the students' responsible behavior for the team research report

appeared to have the greatest role in students' responsible behavior for supporting peers' learning.

The third research question was related to how students perceive the effects of responsible behavior on their own and peers' lives. The results for this question can be seen in Table 5 below.

As is seen in Table 5, the strongest effect of students' responsible behavior on their own learning was related to academic performance and confidence, both of which received an average rating of 4.31. These were followed by skills development (4.3), productivity (4.25), positive reputation (4.2), and increased quality of work (4.2). The students' perception of these benefits for supporting their peers' learning was generally different. Although they agreed that their responsible behavior would have these effects on their peers' lives, they tended to be more neutral in their perceptions. The differences between the data sets were also statistically significant (p=.0000<.05, p=.0000<.05, p=.0000<.05, p=.0001<.05, p=.0335<.05 respectively). Another positive effect of student responsible behavior on own and peers' lives was regarding relationships with peers. The students agreed that both their own and their peers' relationships would be enhanced if they adopted a responsible attitude in their learning. There was no statistical difference between the data for this benefit (p=.0618>.05). Regarding the effect on relationships with students' own and peers' family members, the students did not seem to have a strong opinion. Despite this, a rating of 3.6 for the former in comparison to 3.05 for the latter indicated that this benefit was perceived to be more for their own lives. The difference was also at a statistically significant level (p=.0000<.05). The students also appeared to be neutral about the effects on reduced stress and more free time for themselves and their peers (3.5 vs. 3.47, 3.33 vs. 3.2 respectively).

Table 5
The Effects of Being a Responsible Student

Effects	Own life				Peers' lives					
	Max	Min	$\bar{x}$	SD	Max	Min	$\bar{x}$	SD	t	p
Academic performance	5	2	4.31	.72	5	1	3.86	.84	4.5443	.0000
Confidence	5	2	4.31	.70	5	1	3.89	.82	-4.3945	.0000
Skills	5	3	4.3	.64	5	1	3.56	.86	4.540	.0000
Productivity	5	1	4.25	.76	5	1	3.87	.86	3.7629	.0001
Positive reputation	5	2	4.2	.71	5	1	3.76	.88	4.0344	.0000
Quality of work	5	1	4.16	.78	5	1	3.95	.94	1.839	.0335
Relationships with peers	5	2	4.2	.74	5	1	4.05	.82	1.5449	.0618
Relationships with family members	5	1	3.6	1.19	5	1	3.05	1.21	-3.7938	.0000
Reduced stress	5	1	3.5	1.21	5	1	3.47	1.05	-.167	.4337
More free time	5	1	3.33	1.3	5	1	3.2	1.11	.8951	.1857

$p < .05$

There was no difference between the data sets for these effects at statistically significant levels ($p=.4337>.05$ & $p=.1857>.05$).

Discussion

This study sought to better understand how students perceive responsibility for their learning and that of their peers in a Communication course that incorporates the principles of PBL. Results indicate that students see particular individual assignments—such as the in-class individual reading and writing assessments (IRWAs) and individual literature review, which is assigned at the beginning of the semester—to be very important to their individual learning. These tasks, however, are not considered important to the learning of their peers. On the other hand, other tasks—like the team research report, which is a collaborative project— are considered important for both their and their peers' learning. These findings, while not surprising, suggest that the way tasks and assignments are structured within a PBL environment matters if one essential goal of team-based projects is to develop in students a sense of responsibility for their own learning and support for their peers' learning. For example, students likely see the IRWAs as minimally important for peers' learning because they are written individually under testing conditions, scores are applied to the individual grade component of the course, and students' overall course grade is not directly impacted by how well or how poorly teammates perform on them. This is the case for other individual assignments, including the individual literature review.   Understanding why students may

perceive such assignments as unimportant to peers' learning is important, because all assignments in our COMM courses are intended to integrate the principles of PBL. If some assignments are not helping students develop a sense of responsibility for their own learning and need to support the learning of their peers, then adjustments should be made to the way such assignments are structured, delivered, and assessed.

Results for part one of the first research question indicate that students believe that they have more responsibility for their own learning than they do for supporting their peers' learning. This finding is a bit unexpected given the context of our study. After all, Emirati culture is considered collectivistic, and students tend to exhibit behaviors and attitudes that mirror those associated with being part of a group rather than what we usually associate with individualistic cultures. One reason for this finding may be due to the nature of schooling in the UAE. Schools in the UAE tend to follow a more western (and, in particular, US) structure (Darwish & Huber, 2003; Palfreyman, 2014). This is particularly true at the tertiary level where most universities, like ours, follow a US model of higher education, including the use of English as a medium of instruction (Ayish, 2019; Findlow, 2006; Mouhanna, 2016). As Bielenberg and Gillway (2007) found, PBL is generally absent in K-12 education in the UAE, so most students entering our COMM classes as freshman have had little exposure to teaming, collaborative learning, or the principles behind PBL. Therefore, while it may be understandable why many students in our study do not necessarily see that they have a responsibility or even a vested interest in helping peers learn, this finding is a

reminder that tasks need to be carefully designed in order to help students develop a sense of responsibility. In this way, students can benefit the most from the essential features of PBL, including the need for individuals to take responsibility for their own learning while helping their peers learn.

Results for the second part of the first research question indicate that in terms of gender and course, COMM151 students had slightly more tendency towards responsibility for supporting their peers' learning despite a lack of statistical difference between student responses. This finding suggests that second-semester students with more PBL experience have developed a more nuanced understanding of their responsibility toward supporting peers' learning, which provides some support for the findings of previous research indicating that PBL is both compatible with student learning (the way some students learn) (Schmidt, Loyens, Van Gog & Paas, 2006) and the way some students perceive the learning environment (Peters, 2010). With an effective PBL environment, therefore, first-semester students should be able to develop their sense of responsibility even sooner, not only for their own learning, but also for supporting their peers' learning. This, in turn, should increase second-semester students' tendency toward responsibility. This is particularly true if students see that such responsibility is necessary for success (i.e., it can lead, for example, to a better final team research project and overall course grade).

The results for the second research question suggest that the extent to which students identify particular tasks and assignments that require them to be responsible for their own learning and support peers' learning depends on a number of factors, including the kind of task involved, whether the task is individual or group-based, and where the task falls during the semester. This finding echoes earlier research that suggests that student perceptions of tasks are influenced by the way a PBL environment is structured. Dochy et al. (2005), for example, found that "students value the key variables of the learning environment as powerful (i.e. enhancing learning)" (p. 41). It also suggests that some students may not necessarily see the interdependent nature of some of the tasks assigned to them, thus making the PBL environment less effective than it might otherwise be (Blumberg, 2000).

In our particular context, it may be that the way tasks and assignments are designed and introduced affects students' perceptions of those course components. For example, students identified the individual reflective writing assessment (IRWA) as having the greatest impact on how they perceive their sense of responsibility for their learning. Conversely, the team research report is cited as having the greatest

impact on how they perceive their sense of responsibility for supporting their peers' learning. While both assignments involve group work, whole class discussions, and reflection in preparation for completing the task, it is possible that the emphasis placed on the IRWA, from its name to the way students are individually assessed, makes most students see it as only relevant to their own learning. Yet, the intention of the IRWA is to evaluate how much students have learned about a particular communication skill (e.g., intercultural communication) in relation to and through their interactions with others in class. It is possible, therefore, that students, when responding to our survey, may have lost sight of the importance of classroom discussions on the seminar topics.

The results for the third research question suggest that students have a mixed view and, in some cases, even ambivalence toward the effects of responsible behavior on their own and peers' lives. This is important to note, because instilling personal responsibility for learning and helping students recognize the need to be at least somewhat responsible for helping peers learn is an essential PBL component and outcome (Hmelo-Silver, 2004; Savery, 2006) and one that moves beyond the classroom and into the area of life-long learning.

Given that students identified that increased academic performance, confidence levels, and improved relationships with peers would be enhanced if they adopted a responsible attitude toward their learning, this suggests that they are cognizant of the benefits of being responsible. Yet awareness alone is apparently not enough to ensure that students practice responsible behavior for their learning or support the learning of their peers (Kivela & Kivela, 2005). This finding highlights the importance of monitoring student behavior and attitudes carefully in a PBL environment and adjusting tasks and activities if necessary to help them operationalize this practice. Getting students to recognize the inherent value of being both personally responsible for their learning and being willing to help peers learn is an essential first step for success in a PBL environment. It is also important for developing students' lifelong learning skills. In a recent study, we found that students' lifelong learning skills are positively affected by skills of learning reciprocity (Deveci, 2019). Some of these skills include students' attitude towards sharing their knowledge with peers and helping them to learn, openness to different perspectives, work with people with similar learning needs, and willingness to change communication styles according to others' preferences. Collectively, these skills encourage students to assume active responsibility for their own learning, as well as for supporting their peers' learning.

Limitations and Recommendations for Future Studies

One key limitation of this study stems from the number of male participants. While we believe that we were able to adequately interpret the data from the twenty-one males (out of a total of 124 students) included in the study, we are cognizant that having a relatively equal number of male and female participants would likely have strengthened any gender comparisons. Another limitation is the lack of instructor perspectives. Studying how instructors perceive student responsibility for their own learning and for supporting the learning of their peers would add insight into our findings and lend a voice to key players in a PBL environment. A third limitation is the lack of data on participants' grades. Analyzing student and instructor perceptions of the impact responsibility for learning has on grades would deepen our understanding of this complex relationship. A fourth limitation is a lack of interviews. While this was a quantitative study, including a select number of carefully constructed interviews would offer insight into the thinking of some participants and help clarify questions a closed-item questionnaire cannot adequately answer.

Future research can examine how students perceive the role instructors play in their perspective of personal responsibility for their own learning and for supporting that of their peers. The influence an effective instructor plays on the learning of students is well established. How that influence impacts a students' sense of responsibility for learning within a PBL environment would add valuable information that could inform course design.

Additional research can also analyze how students perceive the impact their sense of responsibility has on their individual and team grades. Identifying any links between perceived responsibility and grades throughout the semester would be useful in helping students better understand the impact that being responsible for their learning or supporting the learning of their peers has on their performance.

Conducting a longitudinal study of students as they progress through their four years of undergraduate study to identify any particular factors that affect how they perceive responsibility for their own learning and for supporting peers' learning would also be very useful. This is particularly important in the Gulf region (and other parts of the world) where segregated campuses often exist. Findings can then be used to inform the design of freshman courses, like COMM 101 and COMM 151 in particular, to ensure that tasks and assignments are structured in such a way as to best support students' sense of responsibility for learning.

Finally, research can consider the role culture plays in how students perceive and operationalize personal responsibility for their own learning and its impact on supporting peers' learning. Given that most universities in the Gulf region follow a western (and US in particular) framework, better understanding how local culture, which is collectivistic, interacts with a university's individualistic culture relative to responsibility and learning would be invaluable in offering insight into how best to meet student needs.

Conclusion

The findings from this research are particularly important since they offer insight into how students in our Communication courses perceive responsibility and its effect on their own learning and support for peers' learning in a PBL environment. While the majority of students believe that they have more responsibility for their own learning than they do for supporting their peers' learning, most students also recognize that being responsible for their own learning and supporting their peers offers benefits to all. Acting on this realization, however, is problematic, because only a minority of students actually operationalize what is, for many, just an awareness.

To get students to move beyond simply recognizing the importance of being responsible for their learning or for supporting the learning of their peers, it is necessary to provide them with concrete opportunities within a PBL environment to see how being responsible can lead to more meaningful learning and overall performance. One way to do this is to carefully evaluate tasks and assignments. Assignments should be structured in a way that promotes responsibility for learning. For example, we can assign tasks and research topics on the interconnectedness of student behaviors. We can also create individual writing examination questions that ask students to consider the effect their behaviors have on others. This can be incorporated into the intrapersonal communication seminar by focusing more on the emotional intelligence component of the unit.

In addition, rather than assume that students see the interrelated nature of assignments, making such connections explicit will help those students who do not feel a strong sense of responsibility for their own learning or for supporting their peers' learning. This can take the form of class discussions that help students understand how individual assignments are connected to other assignments and contribute to peers' overall learning. Framing such tasks in a way that captures the essence of the skill so that students more easily recognize its learning outcome has been shown to be effective (Mergendoller, Markham, Ravitz, & Larmer, 2006).

In the end, better understanding of how students perceive responsibility for their own learning, as well as the need to support peers' learning, is an essential first step in creating an effective PBL environment that contributes to student growth and development.

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Appendix

Questionnaire on Responsibility

This questionnaire is designed to better understand how students perceive responsibility for one's learning and for supporting peers' learning. Please respond candidly and know that your responses will be kept confidential. Thank you.

Section A—Demographics
1) Your age:
3) Gender: Female   Male
4) Course: COMM101   COMM151
5) Your nationality:

Section B—Responsibility
1. To what extent do you feel you are responsible for **your** own learning in COMM class?

Not at all	A little	Somewhat	A lot	Quite a lot
1	2	3	4	5

2. To what extent do you feel you are responsible for supporting **your peers'** learning in COMM class?

Not at all	A little	Somewhat	A lot	Quite a lot
1	2	3	4	5

3) Indicate the extent to which the following tasks and assignments in your Communication course require you to be responsible for **your own** learning.

	Not at all	A little	Somewhat	A lot	Quite a lot	N/A*
In class writing examinations (IRWAs)	1	2	3	4	5	N/A
Individual literature review/source summary	1	2	3	4	5	N/A
Reading assessments (CRAs)	1	2	3	4	5	N/A
Team literature review	1	2	3	4	5	N/A
Proposal	1	2	3	4	5	N/A
Team research report	1	2	3	4	5	N/A
Team presentations	1	2	3	4	5	N/A
Team meetings	1	2	3	4	5	N/A
Personal development portfolio	1	2	3	4	5	N/A
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1

* Not applicable/relevant

4) Indicate the extent to which the following tasks and assignments in your Communication course require you to be responsible for supporting **your peers'** learning.

	Not at all	A little	Somewhat	A lot	Quite a lot	N/A*
In class writing examinations (IRWAs)	1	2	3	4	5	N/A

Individual literature review/source summary	1	2	3	4	5	N/A
Reading assessments (CRAs)	1	2	3	4	5	N/A
Team literature review	1	2	3	4	5	N/A
Proposal	1	2	3	4	5	N/A
Team research report	1	2	3	4	5	N/A
Team presentations	1	2	3	4	5	N/A
Team meetings	1	2	3	4	5	N/A
Personal development portfolio	1	2	3	4	5	N/A
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1
Other (please specify):	1	2	3	4	5	1

5) Indicate the extent to which you agree with the following benefits of being a responsible student that apply to **yourself.**

Benefits	Completely disagree	Disagree	Neutral	Agree	Completely agree
Increased academic performance	1	2	3	4	5
Increased positive reputation	1	2	3	4	5
Improved relationships with peers	1	2	3	4	5
Improved relationships with family members	1	2	3	4	5
Improved skills	1	2	3	4	5
Increased confidence	1	2	3	4	5
Increased productivity	1	2	3	4	5
More free time	1	2	3	4	5
Reduced stress	1	2	3	4	5
Increased quality of work	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5

6) Indicate the extent to which you agree that **your** responsible behavior toward your peers benefits **their learning.**

Benefits	Completely disagree	Disagree	Neutral	Agree	Completely agree
Increased academic performance	1	2	3	4	5
Increased positive reputation	1	2	3	4	5
Improved relationships with peers	1	2	3	4	5
Improved relationships with family members	1	2	3	4	5
Improved skills	1	2	3	4	5
Increased confidence	1	2	3	4	5
Increased productivity	1	2	3	4	5
More free time	1	2	3	4	5
Reduced stress	1	2	3	4	5
Increased quality of work	1	2	3	4	5
Other (please specify):	1	2	3	4	5
Other (please specify):	1	2	3	4	5
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*Thank you for taking the time to help us better understand the important role responsibility plays in your learning.

TIPs as Texts: Community College Students' Perceptions of
Open Educational Resources

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Textbook prices have increased exponentially in recent years, prompting educators to investigate the usefulness of alternative sources for course readings. This is particularly important for community college students who are more likely to be low-income and less likely to complete their educational credentials. Despite this need, there is a dearth of literature investigating community college students' experiences with open educational resources. Therefore, we deployed a primarily open-prompt survey to current community college students who were using Treatment Improvement Protocols (TIPs) as alternative textbooks or textbook supplements to gather their perceptions of this specific type of open educational resource. Students primarily viewed TIPs as better than traditional textbooks with the most common themes including relevance, free access, and ease of use. Students' responses additionally revealed knowledge acquisition from the readings and the potential for a long-term connection to the professional resource.

One of the primary roles of U.S. community colleges is to provide access to higher education. Two major efforts toward this goal are their open-door admissions policy and low tuition rates (Cohen & Brawer, 2008). Additional costs can pose an insurmountable barrier for community college students, including the cost of textbooks (Cochrane & Szabo-Kubitz, 2016). The College Board (2016) estimates that students who attend public two-year colleges in their hometowns will spend $1,390 annually on books and supplies. That cost is *higher* than the $1,250 estimate for university students. To minimize this cost for students and increase their access to textbooks, libraries acquire textbook copies, whether print or digital, and place them on reserve for students (Ferguson, 2016). Despite this creative way to avoid high cost textbooks, new challenges arise, for instance, requiring students to purchase access codes in order to complete course requirements (Walsh, 2012).

Textbook costs are more pronounced for community college students who are classified as academically underprepared and who are more likely to receive financial aid (American Association of Community Colleges, 2014). There is a delicate "tipping point" for low-income community college students who have a tenuous threshold for obstacles in already overwhelmed lives (Ocean, 2015, p. 190). As textbook prices and the online access codes often associated with them increase, community college educators need to be creative to minimize barriers for students (Walsh, 2012). However, similar to community college students, employees often do not have access to enough resources (Ocean, 2015). Therefore, we investigated using existing, freely available resources, Treatment Improvement Protocols, to avoid an excessive burden being placed on either group.

The Treatment Improvement Protocol (TIP) Series was first developed in 2008 and continues to be disseminated by the Substance Abuse and Mental Health Services Administration (SAMHSA), a division of the broader U.S. Department of Health and Human Services (HHS). The TIP Series encourages practitioners to engage in an evidence-based practice. It includes four types of publications: Concise Desk Reference Guides, Knowledge Application Program Keys, Quick Guides, and Treatment Improvement Protocols (TIPs) (SAMHSA, n.d.). The goal of the writings is to enhance clinical services in the field of substance abuse. There is an implicit commitment to continue to create TIPs with updated information; however, this is ultimately dependent on the federal administration.

TIPs are organized similarly to a textbook, including an introduction to the volume, chapters, appendices, and an index. They range from 150 to over 200 pages. Despite these similarities, TIPs were not developed to be used as textbooks; they were not written specifically with students in mind and do not have characteristics like bolded definitions or broad overviews of topics. Instead, TIPs are specific and focus on substance use and mental health, and they were developed for substance abuse professionals practicing in the field. TIPs include best practices based on the most recent research, administrative practice, and clinical expertise (SAMHSA, 2015). They are written in clear language that can easily be understood by individuals who are new to the concepts. Their readership has expanded to health professionals and the general public as substance abuse is acknowledged as a public health concern. Community college students fit both the originally intended and expanded audiences with their diverse student populations, including both first-time college students and returning professionals. TIPs are freely available in electronic versions (PDF and HTML), as well as print

copies that can be ordered for no cost when available. TIPs are a cost effective, research-based, and pragmatic alternative textbook to use in an addiction studies program at a community college.

The research on students' perceptions of textbooks and alternative textbooks is limited (Gurung & Landrum, 2012), though students can serve as important collaborators in developing the course experience (Mihans, Long, & Felten, 2008). It is critical that educators understand student perceptions and engagement with textbooks, textbook alternatives, and open educational resources (OERs) (Prasad & Usagawa, 2014). Within this article, we review the existing literature on this topic and then present our own our research on using TIPs as alternative textbooks and textbook supplements at a community college.

Literature Review

State and federal legislatures have debated textbook affordability as institutions of higher education simultaneously grapple with the rising supplemental costs for their students. Within this section, we provide an overview of legislative efforts; OERs generally; and the research in this area including student, faculty, and librarian perceptions and experiences with OERs.

Legislative Efforts

State and federal governments have turned their attention to textbook costs and transparency for the past decade. Many state and federal guidelines now require faculty to consider the financial impact of their selected textbooks and publish textbook costs for their courses publicly. At least 39 states have enacted textbook affordability legislation (Morris-Babb & Henderson, 2012). In 2008, the U.S. Congress passed the Higher Education Opportunity Act, which reenacted the Higher Education Act of 1965 and included new language that specifically addressed textbook transparency and affordability. Most recently, the Affordable College Textbook Act was introduced in 2015 to address the increasing costs of textbooks. This piece of federal legislation was intended was to encourage the development of OERs via grant funding, but the bill did not successfully advance (Affordable College Textbook Act, 2015). All of these legislative efforts, regardless of success, highlight the cost of textbooks as a problem for students in higher education.

Open Educational Resources

Open educational resources (OERs) are educational materials that are license-free and available to the public. OERs appear to be more commonly developed at universities, where they have the resources to offer grants to faculty to compensate them for the additional work (Ferguson, 2016). A minority of community colleges are developing their own OERs. For instance, Tacoma Community College (TCC) funded a full-time staff member to coordinate an OER Project. The staff member assisted faculty members in the development and adoption of OERs for their courses (Senack, 2015). Places like Tidewater Community College have also added Z-Degrees, degrees attained without from textbook costs (Wiley, Williams, DeMarte, & Hilton, 2016). Additionally, the Community College Consortium for Open Educational Resources (CCCOER) (n.d.), a specialized group within the Open Education Consortium, advocates for community and technical colleges use of OERs. CCCOER provides a central location for community and technical college faculty to learn about and search for OERs. OERs can serve as primary textbooks, or they can function as supplements to traditional textbooks (Islim, Gurel Koybasi, & Cagiltay, 2016).

Despite these efforts to create OERs, change in this area likely requires additional training for faculty and staff (Elhers, 2011). This is a new area of development, and many faculty and staff are just beginning to become aware and make use of additional tools that can be associated with OERs, such as learning analytics. If educators took full advantage of the available resources and software, they could identify how frequently and in what ways students engage with these resources, if at all (Prasad et al., 2016).

Students' Perceptions and Experiences

According to existing OER research on community college students, students perceive OERs as the same or better than traditional textbooks for introductory courses (Cooney, 2017; Hilton, Gaudet, Clark, Robinson, & Wiley, 2013; Illowsky, Hilton, Whiting, & Ackerman, 2016). Students specifically noted the cost effectiveness and the user-friendly nature of accessing the readings virtually anywhere as top reasons for the positive ratings (Cooney, 2017).

These findings are consistent with research conducted generally with post-secondary students who report a preference for OERs over traditional textbooks (Delimonta, Turtleb, Bennettc, Adhikarid, & Lindshielda, 2016). During the Fall 2010 semester, the Florida Distance Learning Consortium investigated student opinions of textbooks. Over 14,000 university and college students completed the survey. The researchers concluded, "What students want in a text is unlimited accessibility for multiple devices, an affordable print edition, self-print access to the entire book, and online study aids" (Morris-Babb & Henderson, 2012, p. 149). Students preferring access to printed copies of texts

is a reoccurring theme in the research; students explain that they often take notes as they read or make annotations on the actual readings to increase their learning and retention of the materials (Foasberg, 2014; Gressley, 2013; Spencer, 2006). When students are required to use an online textbook, they frequently do not take advantage of the electronic tools, including note-taking features, highlighting options, and searching functions; however, the students who understand and use these features perceive them as helpful (Johnson, Berg, Pillon, & Williams, 2015). It is still unclear if students do not use the online tools because they are uninterested or simply unfamiliar with the resources.

Beyond OERs, students describe the ideal textbook as inexpensive, well written (stating the pertinent information clearly once), and visually appealing (Starcher & Proffitt, 2011). Students report not reading textbooks due to lack of time or because they perceive the material as boring, unnecessary, or unrelated to the course requirements (Starcher & Proffitt, 2011). Students who classify themselves as "unprepared" are also less likely to endorse traditional teaching tools, such as textbooks, as helpful to their knowledge acquisition compared to their self-classified "prepared" counterparts (Henriques & Kusse, 2011). A study by the Florida Virtual Campus (2016) found a correlation between students who do not purchase required textbooks and students who fail courses.

Professional Experiences and Perceptions

Within this broader conversation, it is also important to consider postsecondary faculty and staff experiences and perceptions of OERs and other free, alternative textbook options. Professors report alternative textbooks are easier to use and believe OERs may increase student learning compared to traditional textbooks (Delimonta et al., 2016). Faculty are indeed a diverse group, leaving a single solution to the problem of textbook affordability unlikely (Harley, Lawrence, Acord, & Dixson, 2010). Klymkowsky (2007) acknowledges the uniqueness of the vast array of disciplines taught at the post-secondary level. He encourages professors to be thoughtful when considering whether or not a textbook truly is required for the students' acquisition of knowledge.

There are other innovative ways to circumvent the high cost of text books without sacrificing content. Instructional faculty can work collaboratively with librarians to find subscription e-books that can serve as course texts; additionally, hyperlinks, linked directly to the e-book readings, can be embedded into a learning management system, like BlackBoard (Ocean, Allen, Thompson, & Lyman, 2016; Ratto & Lynch, 2012). Librarians, as advocates for access to information, have also developed easily accessible OER collections as

resources for faculty (Okamoto, 2013). Drawing on existing resources is likely a requirement at community colleges that do not have a surplus of employees, money, or time.

Purpose of Research

Our goal with this research is to add to the literature on students' perceptions and experiences with alternative textbooks, and more specifically, to investigate using TIPs as an alternative textbook or textbook supplement at a community college. We sought to answer the following research question: *What are community college students' perceptions of and experiences with Treatment Improvement Protocols as alternative textbooks or textbook supplements for addiction studies courses?*

Methods

Qualitative research is the method of choice to investigate new phenomena with understudied populations (Rose et al., 2014) and to gather the "expert knowledge" of those directly impacted by policy and practice (Hopf, 2004, p. 203). Therefore, we surveyed current community college students using a primarily open-prompt survey to investigate their perceptions and experiences with TIPs. In an effort to create transparency with our research, we will briefly detail our site and participants, data collection, analysis, and trustworthiness in this section.

Site and Participants

We conducted the research at a community college in the southeast region of the U.S. The institution, like others in the region, offers a variety of certificates and degrees, including a Certificate in Addiction Studies and an Associate in Science Degree in Human Services with a concentration in Addiction Studies. The institution was large, consisting of five campuses with over 40,000 students. This study was conducted at the institution's largest campus, with over 20,000 students. During the Spring 2014 and Fall 2015 semesters, all of the students (N=120) enrolled in the addiction studies courses that used TIPs as alterative textbooks or textbook supplements were invited to participate in the survey. The majority of students completed the survey (n=100).

Students were recruited from four addiction studies courses. In two of the courses, Assessment and Family Counseling, a singular TIP was used as the main textbook throughout the semester with occasional journal articles supplementing the TIP. In the Individual Counseling course, chapters from multiple TIPs were used as weekly readings throughout the semester. In the Group Counseling course, the TIP was used as a supplement to a traditional textbook for the first half of

Table 1
Courses and OERs

Course	OER
Assessment	TIP 35: Enhancing Motivation for Change in Substance Abuse Treatment
Family Counseling	TIP 39: Substance Abuse Treatment and Family Therapy
Group Counseling (TIP used as supplement to traditional textbook)	TIP 41: Substance Abuse Treatment: Group Therapy
Individual Counseling (chapters used from multiple TIPs)	TIP 27: Comprehensive Case Management for Substance Abuse Treatment TIP 34: Brief Interventions and Brief Therapies for Substance Abuse TIP 37: Substance Abuse Treatment for Persons With HIV/AIDS TIP 45: Detoxification and Substance Abuse Treatment TIP 47: Substance Abuse: Clinical Issues in Intensive Outpatient Treatment TIP 50: Addressing Suicidal Thoughts and Behaviors in Substance Abuse Treatment

the semester, and a traditional textbook was singularly used for the second half of the semester (Table 1). Note: Because the number of addiction studies programs is relatively small in the southeast region of the U.S., we have changed the names of the courses to their general topic area. All were specific to addictions.

Data Collection

Extra credit was offered as an incentive for students to complete the survey. To avoid coercion, more than one extra credit opportunity was offered to students. For instance, students could earn extra credit by either (a) completing the survey and emailing the professor to inform her it was complete (this was via the honor system since the survey was anonymous) or (b) completing a self-care activity and emailing a classroom appropriate selfie of the activity to the professor. Students were not eligible to complete both activities for twice the amount of extra credit. An email was sent to students explaining their options and including a link for the survey.

We created our 10-item survey using SurveyMonkey software. We used the National Union of Students' (2014) questionnaire on student perceptions and experiences with OERs to develop the survey, adjusting for the specific nature of our research on TIPs. One closed question began the survey, followed by nine open-ended prompts (Appendix). The surveys were anonymous, and we removed any identifying information as needed before saving the de-identified responses in a Word document to analyze.

Analysis

A team of three researchers completed the analysis (all but the lead author). The team consisted of a librarian, a tutoring center manager, and an individual who was both an online learning specialist and a recent community college graduate. Individuals from these three areas were intentionally chosen to create a cross-section of perspectives and decrease bias. The tutoring center manager brought her perspective both as an administrator and as a previous tutor, understanding some of the reading roadblocks students encounter in their studies. The librarian possessed expertise with academic resources, student issues with accessing resources, and OERs. The last team member brought his expertise in accessing online resources, student barriers to accessing online resources, and the students' perspectives. The team had no vested interest in a positive outcome for the study.

The team individually read through the de-identified student responses multiple times noting their reactions and identifying preliminary themes. Next, the team revisited the data, independently coding the responses and searching for themes for each question. They sought overarching themes across question responses to address the broader research question. Then they met as a team to share their observations and discuss commonalities among their coding. They assigned questions to each team member and re-read through the data to enhance the trustworthiness of the results (Spencer, Ritchie, & O'Connor, 2003). Each team member created conceptually clustered matrices, grouping similar student perceptions into visual categories (Miles & Huberman, 1994). For example, they used tables to categorize responses that viewed

TIPs positively, negatively, or in the areas between or outside of these categories. Excel spreadsheets were also created to categorize and count student responses, which assisted in moving the data from abstract perceptions into concrete feedback. Additionally, the team used color coding to categorize responses into like groups, double and embedded coding responses as appropriate (Saldaña, 2011).

The team then condensed the students' perceptions into overarching themes. To assist in moving the data from categories into themes, each team member created an outline of the major themes while combining the categories within umbrella themes that assisted in answering our research question. The team met again to compare and contrast outlines. The team also discussed differences and moved towards a comprehensive answer to the research question. Then, they began to write the results as a team, rotating between writing and consulting. They refined the findings and revisited the coded and raw data as needed to ensure the students' experiences and perspectives were accurately reported. The team met regularly to discuss the preliminary findings and to document the shared and divergent perceptions which helped to increase the collaboration and trustworthiness of the final product (Fernald & Duclos, 2005).

Trustworthiness

Multiple steps were taken to ensure trustworthiness of our results. First, using a diverse team served as a checkpoint in the analysis (Saldaña, 2011). The multiple perspectives ensured that the analysis did not overly veer in one direction or the other, and the team members brought their own expertise and unique perspectives to analyze the data. Additionally, our analysis team was chosen because the members did not have a direct vested interest in the outcome of the research (the first author, who was also the professor of the courses, did not participate directly in the analysis). The team revisited the data consistently throughout the analysis to ensure the analysts' views were not overshadowing the perceptions and experiences of the students (Spencer et al., 2003). Lastly, the data were processed through many stages of methodical analysis guided by the recommendations in the literature. The analysis team filtered the data multiple times—moving from raw data to codes to categories to themes and back—to ensure important information was captured and not lost in the process.

Findings

Student responses were overwhelmingly positive about TIPs. The vast majority of students responding to the survey preferred TIPs over textbooks. A minority of students did not use TIPs or would have preferred to use a traditional textbook. Students' acquisition of content from TIPs was evidenced in the data in addition to the connection students formed to TIPs as career-long professional development resources. We will detail each of these themes in this section.

Positive Perceptions

Most of the students' responses were positive (76%-81% varying only slightly on each question). We developed three themes for students' positive perceptions and experiences with TIPs: relevant, economically accessible, and user-friendly.

Relevant. More than half (59%) of positive responses included remarks about the relevancy of TIPs. For the study, relevancy was broken into three major categories: (1) Students noted that TIPs were practical since they included specific cases and examples that students would eventually encounter in the field, (2) TIPs were current and included the latest research surrounding the field, and (3) TIPs adequately prepared students for state exams and other necessary tests. The following quote is representative of students who found TIPs relevant to their education and ultimately their profession:

> They are best practice guidelines for the treatment of substance abuse disorders. They are current and professionally written with the goal of making the reader aware of the latest research which can be used out in the field for practicing substance abuse counselors.

In this case, the student pointed to a specific subject area: treatment of substance abuse. Other students included specific areas that they found especially relevant in TIPs. Some topics brought up were motivational interviewing, family therapy, substance abuse, cultural awareness, stages of change, group dynamics, and intervention strategies. One student explained:

> The TIP presents the models, techniques, and principles of family therapy, with special attention to the stages of motivation, as well as to treatment and recovery. Discussion also focuses on clinical decision making and training, supervision, cultural considerations, specific populations, funding and research.

Many students referred to TIPs as current and therefore more relevant to field: "The TIP books contain information that is actually being used in the field of substance abuse and is practical now and in the future." Finally, students pointed to how practical and relevant TIPs were when studying for specific exams needed to attain degrees in their field: "Again, it is also

a study tool for the state exam & something that I will keep for my personal reference library."

Economically accessible. The second most common positive perception cited by students was that TIPs were free. Students did not have to purchase TIPs unlike traditional, and commonly expensive, textbooks. Many responses (44%) mentioned that TIPs were free as a positive at least once in the survey. A typical response is reflected in the following quote: "I personally liked using the TIPs for my classes. They are a great resource of well researched information. It's also free and makes classes more affordable."

User-friendly. Ease of use was the third most common reason students viewed TIPs favorably. Students' responses can be categorized in two different areas for ease of use: (1) easy to read and (2) easy to access. Students responded that TIPs were easy to read because they are concise, specific, and "to the point." One student responded, "Since I happen to love the field that I'm in, reading TIP is especially enjoyable because it does not beleaguer the facts and information. It defines, states, gives back-up information, and you're done." Students also explained that TIPs were easy to access due to their online format. Students found TIPs particularly convenient because they could access them anywhere at any time:

> The TIP is more of a professional article which is accessed online only and can be printed as needed. When a class requires discussion and reading around a specific chapter of the TIP, it can be accessed online or downloaded to be accessed offline. It can also be printed and placed into a binder to be kept by the student.

The findings suggested that most students who used TIPs preferred them over textbooks. Students surveyed largely agreed that they would rather use TIPs than textbooks in similar courses:

> Textbooks generally encompass several chapters of reading material that is relevant to the course you are taking. This information can be very general, and because textbooks are not necessarily written by practitioners, and they are expensive to produce, their information may not always be accurate or current. TIPs are produced under stringent circumstances and updated often. They are written for practitioners so they are the same material used by professionals; a class textbook would not be used in this same way.

Negative Perceptions

Despite the overwhelmingly positive feedback on TIPs, a minority of students found that there was

a learning curve with the alternative texts and would have preferred a traditional textbook. Some students stated that TIPs did not have adequate background information. One student stated that other students "would not understand all of the terminology." Another commented that a "traditional text offers a more concise tool." These types of comments show the expectations students have for textbooks, especially in introductory classes. It is worth considering student awareness at the introductory level of these courses, even if these comments came from a small minority of students.

Some of the students who made negative comments (fewer than 3% of responses) felt strongly that they would not recommend using TIPs in future classes due to the electronic format: "No I wouldn't it. Because I didn't like it. Maybe people who are familiar with taking online classes." This sentiment was echoed by another student who was concerned that the new format would pose a barrier for students: "I recommend it [TIP] to a student who's familiar with our system, but for someone who is just getting back into school I would recommend the [text] book." One student remarked that students are socialized to use textbooks in primary and secondary schools, which can make a sudden change in college a challenge: "A textbook I was used to utilizing my whole life; I wish it was formatted different or there was more structure to how it is presented." Another student explained:

> I guess what I'm trying to say is when I read a book online I can flip through the chapters as if a printed copy was right in front of me I could highlight what I wanted to leave notes in a way that I wanted if the TIPs looked more like for example the reader/ebook and less like a series of PDF files I would be more comfortable with it.

Other students similarly seemed unclear about how to access TIPs in their electronic form, noting, "…[Y]ou cannot open within your cellphone or iPad." (This is not accurate. TIPs can be accessed on mobile devices.) To some, the issues these students highlight may seem insignificant, but if a student cannot successfully access the course materials, it could be a matter of passing or failing a class.

As found in previous research on college textbooks, some study respondents found the required readings unnecessary: "I honestly never read any of them... I'm just lazy. But I feel they would have helped me more if I did read them." Additionally, a small number of the respondents did not have a clear positive or negative experience with TIPs: "I think it works out ok, No strong feelings one way or another."

Other Themes of Significance

In addition to students' perceptions of TIPs as positive or negative, respondents' comments reflected student learning and evidenced specific content gathered from TIPs. The responses indicated a connection between using TIPs and the transfer of knowledge to students' professional and personal lives. Students also directly addressed the use of TIPs in either their current or future professional lives, thus designating an importance and practicality to TIPs that is not commonly associated with textbooks.

Students' responses evidenced understanding of the TIPs content and application. A student described TIPs as a "resource for agencies to create programs specific to client needs" and something that could be used on a personal basis for those who know people dealing with mental health issues to "benefit in understanding the different types of theories and approaches to helping their loved ones." One comment from a student reflected that they will continue using TIPs "because I use the motivational techniques." Several responses discussed how TIPs moved beyond the theoretical and into practical use as a guide or reference in the field.

Students explained their connection to TIPs as a professional tool that they planned to maintain throughout their careers: "I can't tell you how many textbooks I have or had that I've never opened up again after the class was over. I still reference the TIPs from classes from yesteryear." Another student added that they would not only use the ones from class but pointed out, "[O]nce you sign up, you get notifications for new publications as they come out," continuing, "God knows that in this field, there is always something new being discovered." Again, these are not isolated quotes but reoccurring themes in the survey results.

Discussion

We found that the overwhelming majority of community college students who completed the survey on using TIPs as textbook alternatives and textbook supplements preferred them to traditional textbooks. Students described TIPs as relevant, economically accessible, and user-friendly. This both confirms the previous research and provides new information. Students found TIPs particularly relevant for their professions, which has not been addressed in previous research. As noted, students are likely to skip purchasing textbooks at some point during their college careers, and when they do, they are likely to fail courses (Florida Virtual Campus, 2016). To counteract this troubling trend, colleges should continue exploring ways to make texts more engaging and affordable to students. This is particularly true at the community college level, as many community college students are

non-traditional and economically challenged. TIPs provide examples of free and professionally relevant materials that students use and appreciate.

We also discovered the importance of providing adequate training to students to minimize any learning curve they may face with using alternative and electronic textbooks. Using TIPs requires students to learn new technological skills that are critical to professional success, such as how to access online information and read electronic files. This added benefit is embedded within the course but requires instructor attention. Drawing on the campus-wide expertise and working proactively will help alleviate some of the students' frustration with using TIPs. Partnerships inside and outside of the classroom are essential to success in this area. Within the class, it could be helpful for a professor to ask students who are familiar with the alternative textbooks and who are willing to help their peers to identify themselves. Then students who are unfamiliar and interested in assistance could link with the experienced students. These informal mentoring matches have the added benefit of creating an environment of collaborative learning. Collaborations can also be created across the campus. Often librarians can provide in-person training for students on how to successfully access and engage with alternative textbooks. Additionally, many online learning departments can create short video tutorials or step by step PDF instructions with screenshots to educate students on how to access the readings through various devices, as well as how to use the features to highlight, make notations, bookmark pages, and search the document.

Despite the technological challenges that some students experienced, we discovered a unique finding in our research. It is uncommon for students to seek out new editions to textbooks once they have completed a course successfully, but many students stated they continue to read new TIPs as they are released, even if they are not connected to a course. This directly relates to the most prevalent response about TIPs: their practical relevancy to the field. The students included in this research were seeking practical educational training and credentials; consequently, this finding is not unexpected, yet previously it was unknown how community college students would view TIPs when incorporated into their studies. We found that students understand there is a professional utility to these resources, and their comments reflect their desire to use these resources in the field. Once students recognize the relevancy of a subject, they are more likely to engage with the learning materials and therefore more likely to retain the information. TIPs are catalysts for critical thinking, as they cause students to make connections to other concepts. It is evident that TIPs promoted these critical learning outcomes for the courses based on the survey responses. We found TIPs

encourage students to develop a relationship to a professional resource that students plan to continue as they progress into their professions.

Our findings add important information to this area, yet additional research is needed. Future research could focus more specifically on student learning and student grades. For instance, students in the same course with the same instructor could be divided by section with one section using a traditional textbook and one section using TIPs. Researchers could examine the course success rates, as well as specific student learning outcomes, to tease out the nuances of the use of TIPs compared to textbooks from additional perspectives. Moreover, students could be tracked who take courses that use traditional textbooks and compared with students who take courses that use TIPs to contrast outcomes. The research in this area has begun, to some degree, with our work, but there are many future avenues to pursue.

Limitations

Our study was focused on the perceptions and experiences of community college students who were enrolled in an addiction studies class where TIPs were used as alternative textbooks. This provided focused data for this subgroup of students, but it limited our results for other groups and OERs. TIPs are specific publications and focused on a limited number of subjects. Therefore, professors of subjects outside of the behavioral sciences will have limited application for our findings. Conversely, our results are helpful for other community colleges, in particular for behavioral sciences, human services, and addiction studies programs. Additionally, our research adds important information on the perceptions and experiences of key stakeholders in the challenge to find and provide equivalent, affordable textbooks at the post-secondary level.

Conclusion

Textbook affordability will continue to be an issue for the foreseeable future and will continue to disproportionately impact community college students. Educators will therefore need to continue to seek creative workarounds in order to reduce additional burdens for low and modest income students. Within this research, we found that community college students in an addiction studies program had overwhelmingly positive experiences with existing and freely available resources, TIPs, as alternative textbooks and textbook supplements. Using TIPs in the classroom appeared to encourage learning and to create a link to a professional resource for students that will likely last beyond the courses at the community college. We encourage others to consider using TIPs as texts for their courses where

appropriate. We also encourage educators to continue seeking, utilizing, and evaluating existing resources as course readings to minimize the economic barriers to educational attainment for students.

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Appendix

Survey

1. Were you familiar with TIPs prior to taking courses at [institution]? Response options: Yes, No, or Other (with a comment field)

2. What do you think about using the TIP or TIPs generally for courses in the Addictions program? Is it a good idea or bad idea? Why? Please use specific examples.

3. What were some benefits of using the TIP for this course? What did you like about the TIP? Please use specific examples.

4. What were some disadvantages to using the TIP instead of a textbook? What did you not like about the TIP? Please use specific examples.

5. How would you describe using a TIP to a student who has never used one before? Please use specific examples.

6. Would you recommend a TIP to someone even if they are not a current student? Why or why not? Who specifically do you think might find TIPs helpful or unhelpful?

7. Would you read other TIPs even if they were not assigned to a course? Why or why not? If you have please include some of the specific titles or subjects.

8. How would you compare using a TIP to using a textbook to someone who was not familiar with either one? Please use specific examples.

9. Do you think you will use TIPs as a resource during your career? Would you look to these to assist you in your practice?

10. Please include any other relevant comments to using TIPs as course materials or otherwise here.

The Influence of "Accessibility Cues" on Student Engagement and Interactions with African American Faculty

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This phenomenological study examined the perceptions and experiences of 22 traditional aged students when their African American faculty used "accessibility cues" in the classroom. Examples of "cues" include; encouraging students to actively participate in class, evaluate an assignment, or share personal experiences related to the class topic. Students perceive this form of active pedagogy as an indicator that the faculty member is willing to engage outside the formal classroom environment (Wilson, Woods, & Gaff, 1974). Results of in depth interviews with the students in this study, reveals that when faculty use these "cues" in the classroom, students felt respected, valued, supported, and safe in the learning environment. Although this study occurred at a singular institution in the northeastern region of the United States, the findings of this study are beneficial to faculty and administrators across the globe. This study illuminates how pedagogy in the class can have a direct influence on student engagement.

"As a classroom community, our capacity to generate excitement is deeply affected by our interest in one another, in hearing one another's voices, in recognizing one another's presence" - bell hooks, *Teaching to Transgress*

Over six decades of empirical research conducted in the United States on college student development confirm the cognitive and social development of students is positively influenced by their interactions with faculty (Astin, 1993; Cole, 2007; Kuh & Huh 2001; Pascarella, 1980; Umbach & Wawzynski, 2005). Student-faculty interactions significantly enhance students' career outcomes, self-reported intellectual and affective growth, academic attainment (Astin, 1993), and academic self-confidence (Cokley, 2000). Faculty attitudes, beliefs, and behaviors play a role in the quality of these interactions and in creating an atmosphere that fosters student learning. Higher levels of student engagement and learning occur when faculty members interact with students, use active and collaborative learning techniques, challenge students academically, and value enriching educational experiences (Umbach & Wawrzyski, 2005). In her book, *Teaching to Transgress*, Bell Hooks (1994) argues that using these types of instructional strategies creates a safe place for a student to learn and experience "freedom" in the classroom. As a child, amidst segregation and oppression in the southern part of the U.S., hooks attended school with all Black female teachers who employed such engaging pedagogy. It was within this learning environment that hooks experienced a sense of intellectual and emotional liberation. More recently, studies indicate these same instructional strategies also serve as "cues" to students regarding the extent to which faculty care (Eagan, Figueroa, Hurtado & Gasiewski, 2012; Neville & Parker, 2017; Olson & Carter, 2014) and are accessible to students in- and outside of the formal classroom environment (Wilson et al., 1974). In other words, these "cues" in the classroom influence the quality and frequency of student-faculty interactions (Cole, 2007; Wilson et al., 1974).

While some studies have examined the interaction between students of color and faculty in general, few studies consider student interactions with faculty of color in particular and, more specifically, African American faculty. Research on faculty of color in the United States suggests that their experiences within colleges and universities differ from those of their White peers. It is important to recognize these differences as they may also impact faculty of color's interactions with students.

Faculty of color are more likely than their White colleagues to place a high level of importance on the affective, moral, and civic development of students, as well as value student experiences outside of the formal classroom (Antonio, 2002). This may be why they are also more likely to use instructional strategies, such as class discussions, cooperative learning activities, group projects, and student presentations in the classroom, that all invite student engagement (Hurtado, 2001; Milem, 1999; Umbach, 2006). In our study, we seek to understand how students respond to, and make meaning of, African American faculty's use of "accessibility cues" that empower students to be actively engaged and thereby create a learning environment that allows for their intellectual and emotional "freedom" to occur. Understanding what a student experiences from these "accessibility cues" (Wilson et al., 1974) enhances our knowledge regarding how African American faculty impact students' learning and perceptions of faculty. More specifically, this study enables us to explore and understand what happens when Black faculty use accessibility cues in the classroom.

Purpose of Study

Given previous research suggesting African American faculty, who represent no more than 5% of full-time tenure and tenure track faculty in the U.S. (U.S. Department of Education, 2018), are more likely than their White colleagues to use active teaching methods (Milem, 1999; Umbach, 2006) or accessibility cues, we chose to examine the experience of students in courses taught by African American faculty. The purpose of our phenomenological study was to explore and understand how students find meaning in African American faculty's use of accessibility cues within the classroom. This exploration allowed us to understand how these cues influence student-African American faculty interactions and student engagement in the classroom. The following research question was examined in this study:

- What meaning do students make from their interaction with faculty of color and their engagement in the classroom when faculty of color use accessibility cues?

For the purposes of this study, we define engagement as the degree of interest, curiosity, and passion students show in the classroom that extends to their level of motivation to learn (Hidden Curriculum, 2014).

Literature Review

Because there is limited research on both the interaction between students and faculty of color and the ways Black faculty use pedagogy to create an engaged classroom environment, we explore three bodies of research on American higher education as a foundation to our study. First, we touch upon the literature on student-faculty interactions which helps us to understand how students benefit from their interaction with faculty in general. We then review the literature on "accessibility cues" to understand how pedagogy influences students' perceptions of faculty accessibility. Finally, we examine the literature on the influence of African American faculty in creating engaged pedagogy, which in fact are elements of "accessibility cues," in the classroom. These three bodies of literature help us to develop an understanding of the particular nuances found within the student-faculty interaction when accessibility cues are used in the classroom.

Student-faculty Interactions

As previously mentioned, the seminal research regarding student-faculty interactions indicates this experience has a significant and positive influence on student learning and development. The majority of this literature is quantitative in nature and focused on White students and White faculty. In the past two decades; however, student learning, perceived gains in intellectual and self-development, and satisfaction with the undergraduate experience have been examined in relation to student race or ethnicity (Anaya & Cole, 2001; Cole, 2007, 2008; Lundberg & Schreiner, 2004; Mayo, Murguia, & Padilla, 1995). As the number of students of color continues to increase on college campuses and the faculty population remains predominantly White (U.S. Department of Education, 2018), more often than not, students of color interact with White faculty members. Thus, research examining the influence of student race on educational outcomes associated with student-faculty interaction has emerged. This relatively new body of literature affirms that the quality of a student's relationship with faculty significantly predicts learning for multiple racial and ethnic groups (Anaya & Cole, 2001; Lundberg & Schreiner, 2004; Mayo et al., 1995), and formal contact with faculty in the classroom and the development of a mentoring relationship is likely to positively influence the development of student intellectual self-concept (Cole, 2007, 2008; Mayo, et al., 1995; Santos & Reigadas, 2002). Although research regarding the influence of student-faculty interactions has considered student race, few studies explore how the race of the faculty member influences the students' collegiate experience and learning. In addition, this body of literature does not address what faculty do in the classroom to create opportunities for outcomes such as these to occur. The next section addresses what faculty do in the classroom and how that influences students' perceptions of their accessibility and level of caring.

Accessibility Cues

Wilson and associates (1974) determined that faculty attitudes and in-class teaching practices are the most important indicators for students to determine faculty accessibility outside the formal classroom environment. Faculty that relate to students on a personal basis and support an interactive learning environment demonstrate "cues" for a student to believe the faculty member is open to discussions outside of the classroom as well. Students want faculty to demonstrate a basic level of care, and when faculty learn students' names or ask how they are doing, they demonstrate care and openness (Eagan et al., 2012; Neville & Parker, 2017). These teaching practices also inform how students perceive the faculty member's openness and availability. When a faculty member actively engages students and encourages them to take ownership of their own learning, students perceive these as "cues" regarding the faculty member's willingness to engage outside the formal classroom

environment. Faculty, for instance, may invite students to give input on class plans or policy, ask students to evaluate an assignment or the overall course, encourage student participation in classroom discussions, connect course content to other fields of study and global issues, and encourage conversations about differing points of view. Cole (2007) argues these "cues" help to express value for student comments and link out-of-class activities and experiences with curriculum. Quaye and Chang (2012) further assert that when faculty employ these instructional strategies and demonstrate these "cues," they create an inclusive classroom environment. In other words, "accessibility cues" in the classroom are taken as indicators about a faculty member's desire to interact with students, thus influencing the quality and frequency of student-faculty interactions (Cole, 2007; Wilson et al., 1974).

Accessibility Cues used by African American Faculty

African American faculty and faculty of color make important contributions to the academy, due in part to their concern for the moral and civic development of students, use of engaged pedagogy, research on race and ethnicity, and curriculum development (Antonio, 2002; Milem, 2003; Umbach, 2006). These contributions create an exciting educational environment that bell hooks described as they encourage students to interact with new knowledge and perspectives. Moreover, African American faculty and their colleagues of color are more likely than White faculty to use instructional strategies such as class discussions, cooperative learning activities, group projects, and student presentations in class (Hurtado, 2001; Milem, 1999; Umbach, 2006) to engage students in the learning process and enhance perceptions of accessibility.

It is yet unclear, however, how teaching methods used by African American and other faculty of color shape students' engagement in the classroom and perspective regarding faculty accessibility. In fact, extant research has not identified the educational outcomes students gain from their interactions specifically with African American faculty. The limited research on African American faculty experiences, however, reveals that White students and students of color perceive African American faculty differently (Guiffrida, 2005; Hendrix, 2007; Lee, 1999). While African American students are more likely to perceive African American faculty as caring (Guiffrida, 2005), White students are more likely to harshly judge and resist the teaching styles of Black faculty. White students often question the expertise of Black faculty, devalue course content particularly when race is included, and otherwise undermine their authority (Benjamin, 1997; Myers, 2002; Parker & Neville, 2019; Vargas, 2002).

Little is known about how these behaviors and interactions shape the way students perceive faculty accessibility cues. Understanding what a student experiences when an African American faculty member employs instructional strategies and "accessibility cues" also enhances our knowledge regarding the contributions African American faculty make to students' overall educational experience. More specifically, this study enables us to explore and understand how the use of accessibility cues enhance student interactions with faculty and their engagement in the classroom.

Conceptual Framework

In her book, *Teaching to Transgress*, bell hooks described how her elementary school teachers, all Black women at an all-Black school in the South, were "on a mission" to nurture the intellect of children. To develop children into "scholars, thinkers and cultural workers," teachers promoted a pedagogy that created a safe and stimulating place to learn, so children could reinvent themselves. This type of caring and teaching created an education that was, in fact, "the practice of freedom." We apply this concept of teaching to transgress to the college classroom as we consider the ways students perceive faculty's accessibility cues.

While hooks' *Teaching to Transgress* is guided in part by Freire's work in critical pedagogy that presented education as liberatory, she extends Freire's work by arguing pedagogy that promotes freedom in the classroom is based upon the premise that the classroom should be an exciting, even fun, place to learn. To demonstrate excitement in the classroom is to "transgress" beyond the boundaries of the traditional model of providing knowledge in a one-way flow of information from teacher to student (Hooks, 1994). Hooks tells us faculty must meet the needs of students through the use of more flexible agendas and spontaneous shifts in the direction of the class, something that challenges the too often "seriousness" of higher education teaching and learning. Excitement in itself, however, is not enough to transgress from a more traditional learning environment. Indeed, hooks argues that we, as faculty and students, must also be genuinely interested in one another. The professor must authentically know and value each individual member of the classroom community and their contributions to discussions and learning. Excitement, then, is created via "collective effort" with all members of the classroom serving as salient resources to each other. Creating this dynamic learning experience further promotes "freedom" through students' active engagement and sharing of experiences. These acts of transgression mirror faculty's use of accessibility cues that engage students in the learning process and enhance student-faculty interactions (Cotton & Wilson, 2006; Wilson et al., 1974).

Method of Inquiry

This study was designed to examine how students describe, and make meaning of, African American faculty members' use of accessibility cues (Cole, 2010; Wilson et al, 1974) in the classroom. Descriptive phenomenology was selected as the methodology for this study as it focuses on "what [students] experience and how it is that they experience what they experience" (Patton, 2002, p. 107). This approach seeks to understand the meanings students make from the "cues" faculty use in the classroom.

Participant Selection and Data Collection

The institution chosen for this study is a public baccalaureate degree granting university in the Northeast region of the United States. Undergraduate enrollment approximated 6000, and 20% of the students self-identified as students of color. While 90% of the full-time faculty were White, just 2% of the faculty self-identified as African American. The lead researcher (Neville) contacted faculty that self-identified as African American on this particular campus and asked for permission to observe and interview students in their classrooms. Ultimately, Neville visited five classes taught by African American faculty to recruit student participants. Pseudonyms are used to ensure the confidentiality of all faculty and student participants.

One hundred students were observed in these classrooms which consisted of one course in professional studies and two courses in human services. During each classroom visit, Neville informed students of the purpose of our study and that interviews would be scheduled at the end of the semester, after all assignments and exams were completed. Students were also told their professor would not know if they participated.

We used a semi-structured interview protocol, and each interview lasted for 45 to 60 minutes. Interview questions were designed to gather data leading to an understanding of what students experienced and how students perceived the "accessibility cues" used by African American faculty (Creswell, 2007; Moustakas, 1994). Interviews were recorded using a digital voice recorder and were transcribed verbatim. All transcripts were imported into the qualitative research software program NVivo for data storage, management, and analysis.

Data Analysis

We used a three-step data analysis process of epoche, phenomenological reduction, and imaginative variation (Moustakas, 1994) to code data and develop themes. This entire process began with us engaging in "epoche," where we "bracketed" our preconceived notions and experiences but did not discard them (Moustakas, 1994). We did this by writing memos throughout stages of data collection and analysis so we could examine what participants stated from a fresh and open perspective. Next, we read each participant transcript and gathered significant and "non-repetitive" statements from each student participant and grouped them into "meaning units" (Creswell, 2007, p. 159). This process of phenomenological reduction allowed us to develop clusters of "meanings," which established themes for each participant. When compiled, these themes created a composite of the students' collective experience (Creswell, 2007). Finally, through the process of imaginative variation we explored the participants' conflicting perspectives to develop an accurate depiction of how the phenomenon was experienced by all. We also determined how feelings and thoughts for each participant were connected to the phenomenon (Moustakas, 1994, p. 135). Similar to the previous process, a compilation of these feelings and thoughts were written for the participants as a group. Through this process we came to understand the multiple sources of truth, which are connected to the meanings of the experience (Moustakas, 1994, p. 99).

Findings

Interviews

Ultimately, 22 students were interviewed, including six who self-identified as students of color. All participants were American citizens and were traditional aged (18 to 24 years) college students. Our sample was representative of students based on race and gender at this particular institution.

During interviews, the voices of students emerged as they described "what" accessibility cues were used by faculty, as well as "how" these "cues" fostered a safe learning environment, enabling them to feel comfortable sharing their opinions and experiences in the classroom. In essence, students described specific examples of what it was like to engage in "the practice of freedom" in the classroom (Hooks, 1994). Jane, a White sophomore, captured the essence of how participants experienced the environment as she described it in terms of "warmth." Jane recalled the following:

> I loved it. His [the professor] class was my favorite class this semester. I felt very comfortable. He included me in all his discussions. He included everybody. So, in his class it was a feeling of warmth right when you walked in. It was very comforting.

As Jane indicated, she felt that her professor was approachable and that he created a classroom environment that made students feel included and comfortable. The "warmth" of the classroom environment was further clarified as students indicated the faculty utilized "cues" as they provided students the tools and support they needed to learn, used real world examples in order to present information, and encouraged students to share their opinions and experiences. Therefore, the "warmth" students talked about is divided into three themes; 1) "It was about us," 2) "Makes it real," and 3) "It was a safe place."

"It Was About Us"

Students stated faculty allowed for flexibility in terms of the syllabus and course assignments. The students, along with their professor, changed a syllabus during the semester, designed a class project, and shared feedback. The faculty also incorporated different activities in an effort to create an engaging learning environment. In other words, students described the accessibility cues faculty used which made them believe the faculty focused on student success and learning. Alex, a biracial junior, summed up this perception:

> Like from day one, he said it was about us. Throughout the semester he backed it up too…all the projects were based on our ideas. They were about getting our background knowledge, our interest involved in the class, and seeing how that applies…

As Alex suggested, participants described the instructional strategies and "cues" faculty used to create an environment that encouraged students to be active participants in the classroom. In one class, for example, the professor modified his syllabus in the third week of the fall semester by requiring students to select a national charitable foundation for which to raise money. He then attended most of the fundraising events hosted by the students. This particular class project enabled students to apply theories presented in class and allowed the professor to demonstrate his commitment and accessibility to students.

Overall, students appreciated the time and level of commitment their professors gave toward developing such creative projects. When describing her appreciation for what her professor did to make learning fun and engaging, Julia, a Hispanic senior, stated, "like the fact that she really did innovative things…She really went the extra mile. That takes a lot of time and effort to do those kind of things." Julia understood the time and commitment required of faculty to develop creative teaching and learning opportunities for students, such as case studies and games to help students learn the material. Two seniors,

Audrey and Tad, further described the commitment their professor employed in the classroom to create an engaging learning environment. According to Audrey, their professor created an "open learning" environment. For example, on days in which students were not all that talkative or fully prepared, the professor used PowerPoint presentations and lectured for part of the class. However, on days when students were more actively engaged, he would alter his teaching approach to encourage student participation. Audrey liked the environment because it often felt like "a conversation" was occurring among her classmates, her professor, and her. Tad, a White senior, further stated that on days when students came to the same professor's class unprepared, they were often given the first 15 or 20 minutes to read the material. Tad stated that by doing this, his professor created an environment in which everyone would get involved, and no one was left out of the discussion. Tad also felt that by doing this, his professor not only expressed that students needed to be actively engaged, he treated them with respect.

> It would just be like, "Come on guys. You've got to do the reading. You can't expect me to sit here and talk by myself." And then he would just be like, "You know what, just open your books and just read it right now and then we'll talk. You read it right now; 15-20 minutes, and then we'll talk about the subject," and everyone would get involved. He never really made us feel lesser than him or anything like that. He understood that some people just sometimes can't do the homework, or choose not to do the homework.

As Tad stated, he never felt his professor belittled or punished students for coming to class unprepared; rather, he gave them a few minutes of class time to read the material so all members of the class could fully participate in the discussion. The professor created a positive environment for all of the students, and although he expressed that he wanted students to come to class prepared, he did not forego a class session because students did not read the material, unlike some of Audrey's other professors. Audrey reflects upon the difference:

> …it was just a very positive environment for us all to be in and he was very like, "Okay. So you didn't read this time. Next time you will. We'll learn about this today instead." He would never let – I've had professors like kick everyone in class out because they didn't read. I've experienced it….

According to Audrey, her professor's flexibility and approach created a student-centered environment that promoted learning, and students felt they were an

essential part of the learning process. In addition, unlike some of her other experiences with faculty, Audrey felt this professor demonstrated a different level of accessibility than her other professors. Rather than dismiss students, he took great care to ensure he was teaching students regardless of whether or not they came to class fully prepared. Thus, Audrey felt she mattered, and her learning was important due to the flexibility and commitment displayed by her professor.

Although Tad and Audrey presented the benefits of a faculty member's use of "cues" such as the willingness to be flexible and accommodating, two participants voiced disappointment in faculty adjusting the syllabus and canceling assignments. According to Lisa, a White junior, her African American female professor failed to meet the high expectations originally set forth in the class syllabus. Lisa stated her professor developed a reputation for dropping assignments, and although Lisa admitted this practice lowered some of her personal stress, she seemed disappointed and a little angry when her professor did not maintain the high expectations initially placed on the class. Lisa recalled:

> At the beginning it was really stressful because she has said she had so many things planned for us, so many big papers so many essays, so many tests but then… I, like other people were like, she'll drop half of that stuff by the end of the semester…which she did…I just wish she would like go on beyond my expectations of her and just actually be able to complete a class…and the fact that she missed three weeks of class for like her dissertation and then…a conference and it was just kind of like, felt like it was unfair to me because like I'm paying to go to school, to be in this class that I have to take to get into the second part of this class, and she's missed three weeks of class…she didn't go beyond the expectations of what I thought the class would be.

As Lisa indicated, she set intentionally low expectations for her professor from the very start. According to Lisa, she expected dropped assignments over the course of the semester, and when that happened, Lisa's low expectations and opinion of her professor went unchallenged, leaving her disappointed in her professor. Similar to Lisa, a second participant, Nick, a White senior, expressed the sense of disappointment because he believed his African American male professor was easily swayed by students to alter assignments. Nick believed his professor could have asserted his authority a bit more: "You know, he would just side with us and like give us what we want instead of just, you know…, he has the power… he's the professor..."

As Nick reflected upon his professor's willingness to give in to student requests, he also recognizes that his peers and he were disrespectful because they did not come to class prepared. Nick alluded to feelings of regret:

> I mean, I think personally, I speak for everyone in the class we could of all come to the class a little more prepared to like help him out a little bit so we could…when he'd ask a questions we'd just leave him hanging out to dry but you know that's what I'd do differently…definitely cause I mean he's being respectful to us I feel like we should be respectful to him and actually prepare for his class…do what he asks…

Although participants may not have come to class fully prepared, as described, participants felt faculty remained focused and responsive to the students in order for learning to occur. In addition to remaining flexible and creating opportunities for students to be fully engaged in their learning, faculty provided students with the tools needed to be academically successful. For example, one professor provided students with study guides and options to earn extra credit. According to Jamica, a Hispanic junior, the use of study guides enabled transparency for students to be successful on exams. Danee, a Hispanic senior, further felt her professor encouraged students to seek academic resources by administering extra course credit. According to Danee:

> She [the professor] accepted all kind of forms of learning, you know… like if the writing center wasn't working for me and I went to [the tutoring center] instead or I went to a professor that I had a relationship with that helped more… or a student, ya know…she really, "Okay, you're getting extra help. I'm going to give you credit for it."

As Jamica and Danee stated, their professor supported students' receiving academic support from various resources and she gave credit when students sought academic help. For Danee, her professor's flexibility proved that she was student-centered.

Danee also believed her professor's support and commitment was "a kind of gift" to her academic success:

> …this is a kind of gift I think…she would give us points for going to the writing center and seeking extra help, which was awesome because I do that anyways and for her to give me credit because I'm doing somethin' – it's kind of high school-ish a little bit. College they don't do that for you really at all. So I thought that was like, wow, she's really [chuckles] trying to help us out. She's on our side.

As indicated, participants' perceived faculty as student-centered because they provided students with the resources and support needed to be successful. In addition to developing creative learning activities,

being flexible, and supporting students in their use of academic resources, participants stated faculty were concerned about students fully grasping the concepts presented in class, so they could apply that knowledge. Overwhelmingly, students indicated the faculty accomplished this by using another accessibility cue: integrating real-life experiences in teaching.

"Makes It Real for Us"

Students indicated faculty brought topics to life in three significant ways. First, faculty used instructional techniques such as videos, reflective assignments, case studies, and group projects that engaged students in "real word" issues. Second, faculty shared their own personal experiences as examples in the classroom. Finally, faculty encouraged students to weave in their own experiences and interests into class discussions and assignments in an attempt to connect theory and practice. All of these "accessibility cues" made topics more relevant, and participants described how it made a difference in their learning experience. Danee reflected upon how this occurred:

> I liked how Laura [her professor] took the topics and made them real…It wasn't just something we were reading in a book. She made the AIDS topic personal for us, for all of us to understand…She takes videos that are relevant to our topics and makes it real for us and gives us a connection with these people, with the populations that we're going to work with as human development professionals.

Kelsey, a White junior, also described how this same professor's use of learning tools helped her to connect theory and practice.

> She brought in a lot of outside information. She brought in a lot of videos and documentaries and everything and taught us about specific populations. We would watch a movie about something and then she would have us relate back to different theories and everything. We learned a lot about theoretical perspectives and um…we kinda learned how to process the whole person and everything, the family, the race, the religion, the age, the gender, the sex, all that kind of information, and learning how to not just see a person for one aspect of their lives but just be able to see the person as a daughter and all these different aspects that could impact a person.

Danee and Kelsey both described that by linking theory in course readings to relevant learning tools, such as videos, it was as if a bridge closed the gap between theory and practical application. In some ways, this also helped

students to care about the topic more. The utilization of such learning tools helped Danee and Kelsey prepare for their futures as human development professionals. For some students in the earlier years of their academic careers, the link between classroom theory and real-world examples also served to keep students' attention. Patrick, a White first-year student, stated;

> The easiest way for me to be motivated is to not be bored and he [the professor] would do his best to make sure the class isn't boring, he would stick to the topic but he would relate it to the outside world like the outside the classroom with different chains of restaurants different stores it, it would keep our attention. He would show us a clip of a video every once in a while of something that relates to the class just so it wouldn't seem like a constant lecture and that would keep me motivated at least I wouldn't be falling asleep in class.

Regardless of how the integration of theory and practice was perceived (i.e., connecting theory to real world examples or keeping one's attention), all participants received alternative learning tools, which served to make the class material more interesting and relevant. By providing tools such as video clips or informative news items, students also became more aware of topical issues relevant to their course work. For Cal, an African American sophomore, his professor's continued reference to newsworthy issues prompted him to read the newspaper and watch the news, which kept him "interested" in the class and well-informed.

One professor took the concept of integrating theory and practice to a new level in the upper division course he taught. According to Bryan, a White senior, this professor was the first he ever had who focused on learning and had students actively participate in a project with a concrete and real product as the goal. Bryan indicated his professor taught them to move beyond the book because there are real needs in the world where one can take concepts from class and put them toward something positive and real.

> ….He really was the first professor that it was like, okay, not everything is in the book…there's things out in the world… the whole [class project] thing you could take the concepts you learn in class and put it towards something positive so the things we were learning in class through the lectures and the power points and all that other stuff we were able to put into [a children's charity]…and at the end when you get to present that check [to the charity] it's nice to see…

In addition to using multimedia and projects as opportunities to generate interest in the course work, faculty shared personal experiences, which also made course material

more "real" and relevant for the students. For Scott, a White sophomore, his professor's use of personal events and storytelling helped him learn the material. Scott indicated that these stories told in class helped him to remember the material and do well on exams.

Furthermore, when faculty shared personal experiences, it created an intimate environment that allowed students to feel connected to their assignments, as well as their faculty. For example, Kelsey, a White senior, shared what it was like to be in an African American Literature course taught by an African American instructor. Kelsey reflected upon the significance of this experience:

> ...[S]he had so many personal experiences that it came more naturally to her to teach a class. And she was so passionate about it and so engaged in it that it really was very interesting…she really got in depth a lot… Bringing her firsthand experiences of racial segregation and everything, especially hearing about her mom and her grandmother – she was probably around 50 or something. So, she's seen her share of different racial situations. …She talked about how she used to not be able to go to certain restaurants and stuff. Even her. And it just made it more real life and it really helped to relate it to the readings and everything and made it a much more interesting class…She would sit on the desk and she would get people so engaged and just the way she talked about it, she was so passionate about it.

The personal accounts and passion regarding the subject made a significant impact on Kelsey's experience and learning in the classroom. Hearing the personal accounts of her African American instructor provided her with a context that she may not receive from a White faculty member.

In addition to faculty sharing personal experiences to enhance learning, participants described how they were encouraged to integrate their own personal interests into course assignments. Alex, a biracial junior, explained:

> The thing I like about it, it was that he was just encouraging us to apply it to what we were doing. I did extra credit assignments that were just research in the aquaculture facilities on the business side. Um…You didn't have to get bogged down in just memorizing terms and definitions and everything. It was, "all right here's the information. Let's apply it to what you're doing and what you're going to be doing."

In addition to being encouraged to apply personal interests to coursework, participants also stated that faculty often wove student interests into class discussions. Joe, a White sophomore, indicated that once his professor knew something about students' personal interests or goals, he would always refer to them at appropriate times in class.

> …[Y]a know, the thing about him is when something came up that had to do with something you've told him in the past, he'd go right to you. Ya know what I mean…he asked us at the beginning of the year, "What do you all want to do?"…I told him I wanted to be a cop but I wanted to minor in professional studies. I want to own a business. And he was like, "Yeah, that's cool." He always remembered that…like a girl wanted to open a salon. He'd tell her, when salons came up in certain things and hair products and stuff like that, he pointed out like on the graphs and what to invest in and how it worked. He'd always remember certain things you told him.

Jane, a sophomore, further stated that by continuously referring to participants' interests and goals, her professor displayed how much he cared about students. Jane recalled:

> He cared enough to know some extras in people's life and he would use that as an example when talking to them and talking to the class and trying to get everybody involved. And he'd say, "Well, what do you think about this?" or "What do you feel about this?"

Participants stated the faculty often asked for their opinions and perspectives. According to Linda, a biracial senior, when her professor asked her for her thoughts on a subject, she was excited to share her experience. She stated the following:

> I was more excited [by] the fact that I know what he's talking about because I do it [banking industry] in real life. So everything he would bring up in subject, I had something to say and I was so excited…I've got something to say because I've read it or somebody told me or I've seen it somewhere…I know what I'm talking about.

As this passage illustrates, Linda felt confident in her ability to contribute in class by sharing her experiences and opinions. Her professor therefore created an exciting environment for students to make strong connections between the materials presented in class with real world examples. Ultimately faculty demonstrated their accessibility to students as they created an environment for them to feel safe enough to openly share their personal opinions and experiences in class.

"It Was a Safe Place"

Students described how African American faculty supported and valued their participation by encouraging them to share their experiences and perceptions. As Kelsey, a White junior, stated, the use of this accessibility cue created a "safe place to express your opinions and ask questions." Linda, a biracial senior, recalled that when students spoke up in class, her professor overtly supported them by stating, "That's awesome! That's good!" This verbal support created an environment in which Linda felt comfortable contributing in class. She also stated when students spoke up in class, he thanked them for their contribution. In this manner, her professor displayed a genuine appreciation for student participation. For Linda this also created an environment in which she felt she was a valued participant in the learning environment. Cal, an African American sophomore, stated his professor would never negate a student's comment. Rather, he would weave their thoughts and perceptions into the class discussion.

> [H]e liked the class to get involved and to… give their input in the class and stuff like that… he wouldn't like bash your idea or anything like that… he would just ya know try to fit your idea in what's going on…

By including all students' thoughts and viewpoints in the class discussion, his professor created a learning environment in which participants felt they were an important part of the learning process. According to Audrey, a senior, this same professor created an environment that made it safe for everyone to participate:

> But it was one of those classes you could tell people actually liked going to. It wasn't boring. It was just like exciting, a fun class and you could tell. Most of my classes you have people that like don't talk, you just sit there and you learn. But in this class, every person would give their opinions about things and you could tell it was a very open atmosphere. No one felt nervous. It was just open. There was a girl in my class that I've had like four classes with her before. She never talks. But in that class, she would open up… and I thought that showed a lot about him too. He made sure we all felt comfortable enough to agree or disagree with whatever we were learning or his opinion or something.

As Audrey indicates, students perceived her professor to be accessible and open. He promoted an exciting classroom environment that encouraged all students to share their differing opinions, and he was very careful not to insert his own personal opinions into classroom

discussions. Joe, a White sophomore, further stated that this same professor "just stood in the middle" when students were engaged in classroom debates. Joe believed the professor's ability to remain impartial in the classroom was beneficial because it encouraged students to openly share their perspectives in class, critically analyze information, and formulate their own opinions. Thus, by encouraging students to express themselves, as well as by incorporating their differing viewpoints into the classroom discussion, the professor created a learning environment in which students felt they mattered and that they were valued members of the class.

In addition to making students feel valued by incorporating their opinions and perceptions into class discussions, faculty were respectful when challenging students to reframe their thinking and use of language. Julia, a Hispanic senior, shared her interaction with her professor after she naively used a derogatory term in class:

> So I think she's really open to listening and she's nonjudgmental and she really um…tries to point out your strengths and validate your good points. And she…I like the way she corrected me. I could notice sometimes when she corrected me. Like one time I said, um…'Islam guys' or something like that, something not politically correct, and she was like, 'Oh, Muslim men'. You know what I mean?…she helps correct you but not in a way that puts you down or anything. Like when you say something that could be offensive, she says it in a way that she thinks in her opinion is like a more neutral way to say it and I like that…ya know…'cause she's kind of leading through example."

For Julia, the way her professor approached her and challenged her to think about the use of language made her feel supported and respected. It is also apparent that Julia felt safe and comfortable during this interaction. As Julia indicated, her professor taught by "leading through example" as she exemplified the methods in which human development professionals should educate others about their preconceived notions, stereotypes, and use of language.

For one participant—Jamica, a Hispanic junior—in addition to feeling she could openly express herself in class, she described how meaningful it was to have her ethnic identity included in the course curriculum. According to Jamica, during high school she experienced feeling isolated and alienated when an African American teacher failed to recognize the Hispanic experience when presenting information about diverse populations. In this class however, all ethnicities were represented in the curriculum and Ariel states she felt included and comfortable.

> Yeah, I did feel different because I felt that Amy [the professor] focused like – she talked about

everything, and she included all of us. She didn't just neglect all the Hispanics and White. She talked about like everybody; the Blacks, the Whites, the Hispanics. All the ethnicities were included."

As Jamica indicated, when the experiences of Hispanic men and women were acknowledged in the classroom, she felt that her personal experience mattered in the learning process. For Jamica and many of the other participants, the faculty's use of "accessibility cues" in the classroom created an inclusive, safe, and welcoming environment where they could fully participate.

Discussion and Implications

The context for this study rests within a singular institution in the United States. Results, however, may inform how faculty at institutions across the globe use pedagogy to create engaged learning environments. Findings in this study indicate that when faculty of color used accessibility cues, they taught to transgress. They created an environment for all students to become excited to learn and actively engaged in the classroom environment. From student narratives we learn that when the faculty member used accessibility cues, students felt a sense of respect, comfort, and safety that positively impacted their perceptions of faculty accessibility. As Jane indicated, students felt faculty used a number of "cues" in the classroom, which fostered a "warm" environment. Faculty in our study promoted freedom in the classroom when they allowed students to impact the direction of a course, encouraged and valued student participation, asked students to share opinions, and talked about real world issues. The transgression that occurred within the classroom demonstrates that accessibility cues have a profound influence on how students described their learning environment and perceived faculty accessibility.

First, students felt faculty were flexible and student centered. Faculty encouraged students to integrate personal interests into assignments, share personal opinions during class discussions, and take time to read in class so all could equally participate in the class discussion. The majority of students expressed the flexibility employed by faculty demonstrated their commitment to students. In fact, one faculty member illustrated this by attending the student-organized events that served to fulfill a course assignment. Although two White students criticized their faculty member for cancelling too many assignments, being too flexible, or not asserting enough authority in the classroom, overwhelmingly students shared the sense that they "mattered" as the faculty displayed a commitment to them and their learning.

Second, students indicated faculty members' use of "cues," such as connecting theory with practice through the use of real world examples, employing active learning techniques, and sharing personal experiences in class, created an engaged classroom environment. Students reported that these practices demonstrated the passion faculty had for teaching, as well as made class topics more interesting and relevant. Faculty also wove student interests and experiences into class discussions, which for many students served to bridge theory and practice. For students, these methods created an intimate and exciting learning environment in which they became personally connected to the class discussions and assignments. Students felt these cues allowed them to develop a personal connection to their faculty members.

Third, students felt faculty encouraged them to share personal opinions and experiences in class. When students did so, faculty displayed a genuine appreciation for this level of engagement. Repeatedly, students shared they felt respected, supported, and valued by faculty in the classroom. More specifically, students felt they were an essential part of the learning experience. Findings of this study, therefore, provide further evidence that the use of "accessibility cues" can create an opportunity for faculty to develop a positive and supportive relationship with students within an inclusive and welcoming learning environment.

These findings further the work of Cole (2007), and Wilson and associates (1974) as the use of "accessibility cues" stimulates an intimate learning environment that fosters student engagement. Findings from this study indicate when faculty "teach to transgress" and employ such instructional strategies and "cues" in the classroom students feel safe, respected, and valued. These feelings ultimately influenced students' perceptions of faculty and positively influenced and increased their level of engagement in the classroom. These findings also offer support to the work conducted by Quaye and Chang (2012) as the results illustrate the meaning students make from an inclusive classroom environment. More specifically, when faculty use accessibility cues, students feel that faculty personally care about them, their success, and their learning. In other words, students feel that they "matter" to the faculty member.

Implications

As these findings relate to practical implications, this study provides additional evidence regarding the important contributions African American faculty bring to American higher education institutions. African American faculty are more likely than their White colleagues to use pedagogy that employs "accessibility cues" which promote student engagement and positively influences how students experience their learning environment (Milem, 1999;

Umbach, 2006). Thus, the hiring and promotion of African American faculty is instrumental in furthering the mission of U.S. higher education. The importance of racial/ethnic diversity in hiring and promotion, however, is not limited to the U.S. Understanding the differing contributions underrepresented faculty groups make to higher education and student learning across the globe is an important area to examine in future research. Cultural contributions of all faculty groups can have a profound impact on student learning.

Creating engaged learning environments, however, will require diversifying the faculty, as well as developing faculty teaching skills and pedagogy through initiatives such as professional development opportunities and tenure review. Indeed, this work is not just the responsibility of a relatively small but important group of faculty within the academy. Rather, all faculty, regardless of race, ethnicity, cultural background, and national origin, should use "accessibility cues" in the classroom to promote a safe, respectful, and valued learning space for students. Creating opportunities for all faculty to develop new methods which may enhance student engagement is critical for student success.

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Assessing the Impact of Community-Based Experiential Learning: The Case of Biology 1000 Students

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Teaching and learning of many undergraduate science courses often remains confined within the boundaries of classrooms rendering learning of these subjects irrelevant and detached from students' lived experiences. Community-based experiential learning (CBEL) is one way to address this issue. This paper reports the development and implementation of a CBEL activity and its impact on students' learning of Biology in a large university within Western Canada. Data corpus for the study included written pre- and post-CBEL student reflections, which were analyzed qualitatively. The results suggest that CBEL experience significantly enhanced the quality of students' learning across academic, civic, and personal domains. Emerged themes inform that the students considered their CBEL experience as valuable and empowering as it created opportunities for them to contribute to their own and peers' learning, as well as to the local community's and entire ecosystem's ecological wellbeing. They acknowledged that the CBEL experience enhanced their academic understandings and technical skills, which they can utilize in many other contexts. Outcomes of this study will inform revisions of the Biology 1000 curriculum in new iterations of the course. The study will also interest science educators who strive to promote students' learning in wider Canadian and other international contexts.

Research suggests that regardless of how constructive classroom learning experiences are, students often do not view science as having personal relevance to them (Wyss & Tai, 2012). Community-engaged experiences are reported to enhance students' academic understandings by engaging them in authentic learning activities, which help them connect and utilize course content to address identified needs of the local and wider communities (Furco, 2001; Howard, 1998). Community-based experiential learning (CBEL) is one such community-engaged pedagogical approach that serves as a contextualized community-based learning platform which could positively stimulate students' interest in the particular subject and/or discipline, as well as influence their future career aspirations (Abraham, 2002; Astin, Volgelgesang, Bceda, & Yee, 2000; Gray, Ondaatje, Fricker, & Geschwind, 2000; Prentice, & Garcia, 2000). However, there are very few studies that inform the impact of community-engaged experiences on students' learning of science (Wyss & Tai, 2012).

Moreover, despite the increasing acceptance of community-engaged learning at the higher education level, often CBEL integration in academia involves inherent challenges of providing appropriate professional support to faculty members in designing, implementing, and assessing the impact of such projects on their students' learning (Blanchard et al., 2009; Jameson, Jaeger, Clayton, & Bringle, 2012; O'Meara & Rice, 2005). CBEL activities are based on underlying values of community-engaged scholarship which emphasizes integrating university-community expertise, sharing responsibility and credits among all stakeholders, and ensuring mutual benefits and growth (Gass, 2008; Jameson et al., 2012; Mills, 2012).

In this paper, we share an example of a successful CBEL project in an undergraduate biology course at a large research university in Western Canada, which was developed and implemented as a three-way partnership among the university's Center for Community Engaged Learning (CCEL), the Biology Program, and the community partner. We present an assessment of the CBEL activity's impact on student learning and discuss the utilization of CBEL experience as one way to connect theoretical concepts of biology with the students' lived experiences and explore its impact on students' academic and civic learning, as well as their personal growth. All names used, including the names of the community partners, organizations, and institutions, are pseudonyms. We understand that generally in qualitative studies, the participants are also given pseudonyms but, in this study, we have assigned numbers to participating students. We feel that once you assign a name, even if it is a pseudonym, it automatically triggers some assumptions about the participant. These assumptions may include gender, ethnicity, native vs. English as an Additional Language Learner and many more. Assigning pseudonyms to students may also influence reader's perceptions of the response and/or give a slightly different "flavor" to the response. Thus, we are not comfortable in assigning pseudonyms to students as this can then portray the participants in a way which may not necessarily reflect their subjective reality and the true nature of the Biology class which they are representative of.

Context and Community-Based Approach

Biology 1000 is a large multi-section introductory course offered to first-year undergraduate science students. The course does not have a laboratory component and serves over 1,800 undergraduates every

year. One-third of the course curriculum is dedicated to fundamental ideas and concepts in ecology, which have traditionally been taught through lectures, discussions, and other in-class activities, as well as some readings and homework assignments. While classroom learning can serve as an excellent foundation, often the absence of appropriate authentic experience that connects this learning with students' lives poses a significant challenge in making this learning meaningful and germane.

Moreover, the student population at our institution is largely composed of students who grew up in an urban environment, and they often do not have much experience interacting with the local ecosystems. From the instructor's perspective, employing an outdoor CBEL activity to teach one of the ecology units has the potential of helping students see and experience how seemingly abstract concepts apply to the real world, thus making learning more meaningful and authentic. In addition, such an activity allows students to experience and interact with a local ecosystem, partly compensating for the lack of a laboratory component in the course. The Biology 1000 learning objectives that instructors aimed to address (in part) with the CBEL activity are as follows:

1. Evaluate how biotic and abiotic factors (and human activities) enable or prevent the establishment of a population in a given location, and explain how these factors control population growth over time.
2. Predict how changes in abiotic or biotic factors, or the occurrence of disturbances in a community, will affect the survivorship and reproductive potential of individuals, based on their life histories, and thus affect the structure of the community, in the short and in the long term.
3. Appreciate the diversity of living organisms, observe and notice changes and patterns in the environment, and become familiar with some local species of plants and animals.

CBEL has been widely recognized in academia as a powerful pedagogy that could promote students' learning at any level of education (Baldwin, Buchanan, & Rudisill, 2007). However, for CBEL experiences to be effective, it is essential that they meaningfully connect with the subject matter and serve as potential platforms for achieving curricular goals and intended student learning outcomes (Astin et al., 2000; Wyss & Tai, 2012). Recognizing that the successful implementation of any CBEL experience requires an equitable, collaborative partnership among academics and community partners, Harkavy (2004) emphasized the importance of developing mutual trust and respect among the key stakeholders involving academics, community partners, and students. The success of such projects relies on commitment at both university and community levels.

Therefore, to ensure sustainable vitality of CBEL experiences, it is essential that such programs are carefully designed to minimize the asymmetrical power dynamics between the academic knowledge and community knowledge. Inviting community as a collaborative co-constructor in the process of knowledge creation, CBEL utilizes a strength-focused approach which encourages students to work *with* the community rather than *on* or *about* the community (Mathie & Cunningham, 2003). Hence, a successful CBEL experience is rewarding for all people involved because it establishes meaningful connections between subject matter's theoretical concepts and targets global problems by acknowledging their occurrences at the local levels. As per Harkavy (2004) in such experiences:

> Relationships of trust, so essential for effective partnerships and effective learning, are also built through day-to-day work on problems and issues of mutual concern . . . the local community is a real-world site in which community members and academics can pragmatically determine whether the work is making a real difference and whether both the neighborhood [the community] and the institution are better as a result of common efforts. (p. 16)

Moreover, the outdoor aspect of CBEL activities could be tied with the principles of place-based education. Place-based education recognizes that "places are what people make of them—that people are place makers and that places are a primary artifact of human culture" (Gruenewald, 2003, p. 627). That is, our cultural experience is "placed" in the "geography" of our everyday lives, and in the "ecology" of the diverse relationships that take place within and between places (Gruenewald, 2008a, p. 37). Rather than teaching merely for standardized testing and competing for "rituals of alignment" that focus on filling the "achievement gaps," place-based education demands a more active role of educational institutions that could promote valuing and knowing how to live locally with a recognition of place within which one lives (Gruenewald in Green, 2005). Thus, based on the place-based critical pedagogies, the CBEL activities could lead to providing opportunities for students to participate meaningfully in the processes of place making and prepare them as active and engaged citizens who are willing to contribute towards creating democratic, socially just communal places in their own societies (Gruenewald, 2008b).

However, as Ash and Clayton (2009) mentioned, while applied learning pedagogies like CBEL that involve experiential strategies outside the classroom have great potential for significant student learning,

they also involve inherent challenges of facilitating and assessing that learning as well as achievement of individualized learning outcomes often in non-traditional ways. In such situations, critical reflections focused on well-articulated learning outcomes could serve as key strategy to help generate, deepen, and document students' learning.

Development of the CBEL Project

The project was developed as a three-way partnership among the Biology Program, the community organization (City Parks), and the university's CCEL. The CCEL's roles included identifying a suitable community partner, initiating the relationship between the community partner and the Biology Program, educating the Biology 1000 course instructors on community-engaged approach and CBEL pedagogy, supporting with the design and implementation of all aspects of the project and ensuring that the principles of effective CBEL pedagogy were in place. CCEL staff were also instrumental in sharing strategies to avoid possible sources of tension between instructors, students, and the community partner, which can include students' lack of training and skill, differences between the university's (or the students') and the community partner's priorities, or constraints due to students' academic schedules and availability (Mills, 2012).

The CCEL's Educational Developer identified the local organization City Parks as a suitable community partner. City Parks was initially deemed an excellent fit for the project because of the alignment between some of its priorities and the pedagogical goals of the Biology 1000 course, as well as because of its experience working with large community groups. For instance, City Parks' mandates include both regional park and natural resources management, as well as public education and engagement; the partnership would allow City Parks to educate and engage several hundreds of young people.

Teaching students and having them actively engage with local ecosystems are also goals of the Biology 1000 course/instructors. City Parks also has ample experience with implementing educational community-based activities, including projects where members of the public participate in the management or restoration of local ecosystems. This aspect was crucial, as it meant that the organization had the resources to effectively manage a large student group such as a Biology 1000 class. Importantly, City Parks's portfolio includes several ecosystem restoration projects that do not require any specialized skill and would benefit from the help of large groups of participants. Thus, City Parks was identified as a suitable community partner who could provide ideal opportunities for novice Biology

1000 students to actively contribute to the organization's goals and simultaneously learn targeted aspects of the Biology course through this engagement.

Alignments between the community partner's and the university/course's priorities would also minimize the potential for tensions between the two parties while maximizing reciprocal benefits. In order to also avoid potential issues with time commitment and scheduling, the experiential component of the project (hereafter "CBEL activity") was planned to take place over four hours on a Saturday, and transportation to and from City Park was provided. Students were informed of this at the time of course registration, which allowed them to make any necessary arrangements well ahead of time. The half-day length for the CBEL activity was chosen after careful consideration of the students' level of experience with this pedagogy (they are often novices), their demanding academic and extra-curricular schedules (we did not want the CBEL activity to turn into a "burden"), and the amount of resources that City Parks would have to devote to the activity knowing that 600 to 1,000 students would participate each semester.

The course instructors, the community partner, and the CCEL Educational Developer collaboratively designed an instructional unit that would 1) address some of the learning objectives set out by the Biology 1000 curriculum, 2) have students actively participate in a community project that City Parks deems important, and 3) enrich the students' experience by providing an opportunity for them to develop some practical skills, interact with ecosystem restoration professionals, and spend some time immersed in a local forest ecosystem.

The four-hour CBEL activity component for this unit, which fulfilled the three above requirements, consisted of participating in the strategic removal of English Ivy, an invasive species, from one of the forests managed by City Parks. During the course design, the lectures and readings related to certain biological and ecological concepts were integrated in a manner that could help prepare students for the CBEL activity. These involved discussion and readings related to the characteristics of plants that make them reproductively successful, potential consequences of differential reproductive features, and survival of various organisms including invasive species, as well as the introduction of City Park and the problem that it was facing with the invasive species in question and the role that the students would play in solving it. Students also completed an assignment that covered some relevant biology content and a short reflection . This reflection (hereafter referred as "pre-CBEL assignment") consisted of eight short, open-ended questions, three of which were about students' expectations regarding various aspects of the CBEL experience and five

focused on the biology and ecology of the English ivy within the park ecosystem.

This pre-CBEL assignment was given closer to the CBEL activity so that students could be "primed" for the community engagement and field experience. The pre-CBEL assignment had two goals: to prepare students for the CBEL activity by encouraging them to start thinking about what they might expect through this community engagement, and to help students see some connections between the invasive species removal activity and relevant concepts discussed in class. Moreover, the pre-CBEL assignment served an important purpose in the context of the present study, as it allowed us to document students' expectations about the CBEL activity and provided us with a point of comparison to evaluate how students' understanding might change as a result of the CBEL experience. This assignment also informed the instructor's pedagogical practices as students' expectations of CBEL activity informed how the instructor shared further information about the CBEL activity and also its planning and execution.

The actual execution of CBEL activity involved four student groups of fifty to sixty students going to the City Parks over the course of two weekends. The activity was organized in four half-day sessions (either a morning or an afternoon per group) to accommodate for the students' midterm exams as per the university-wide timetable, and the community partners' schedule and feasibility to support and guide the learning of a large number of students. After participating in the invasive species removal CBEL activity at City Parks, the students completed a second assignment (hereafter "post-CBEL assignment") with the purpose of demonstrating, and reflecting on, their learning. This post-CBEL assignment was more comprehensive than the pre-CBEL assignment and included three sections.

The first section addressed students' familiarity with some of the organisms encountered at City Park and had them provide pictures of particular plant species that they took during the CBEL activity. The second section consisted of six questions (five of which were the same as the ones used on the pre-CBEL assignment) on the biology/ecology of English ivy. This section is where students could demonstrate their newly developed, or refined, understanding of community and ecosystem ecology. Finally, the third section of the post-CBEL assignment aimed at providing students with an opportunity to reflect on their learning experience beyond the biology content. This section comprised five open-ended questions inviting students to reflect on several aspects of their community-based learning of biology, on their impressions regarding the work that they accomplished, and on proposals for other possible community-based activities that would benefit the park's ecosystem and future Biology 1000 students.

From a pedagogical point of view, the objective of the post-CBEL assignment was to engage students in the next step of the experiential learning cycle (Kolb & Kolb, 2009) by encouraging them to actively reflect on their CBEL experience. In terms of the present study, the purpose of the five biology/ecology questions in common between the pre- and post-CBEL assignment was to document changes (or lack thereof) in students' views and understanding of the biology of English ivy and its interactions with the park ecosystem, while students' answers to the third section of the post-CBEL assignment ("reflection questions") allowed us to gain insight into how they experienced the CBEL activity and what skills they felt they developed through this community engagement.

Purpose of the Study

The integration of a CBEL activity into the Biology 1000 was very resource-intensive, especially in the initial stages, and all of the instructors involved were new to CBEL pedagogy. We set out to document the impacts of this activity on the participating students specifically as a means to: a) justify the necessary resource investment and b) improve its quality and effectiveness in future iterations. This paper reports the findings of an analysis of pre- and post-CBEL assessments submitted in one section of Biology 1000 that took place in 2014-2015. The overarching guiding questions for the study were twofold: 1) How does students' understanding of the "Biological content" change as a result of the CBEL experience? 2) What additional skills and/or insights did students develop/strengthen from the CBEL experience?

Methods

To assess the impact of the CBEL activity on Biology 1000 students' learning, we gathered the written pre- and post-CBEL assignments from students in one of five course sections that participated in the CBEL project in 2014 – 2015. This section was comprised of total 221 students of which 145 (66%) self-identified as females and the remaining 76 (34%) self-identified as males. Based on their year of study, 203 of these students were in their first year, 11 (5%) in the second year and remaining 7 students (3%) were in the third year of study in the Bachelor of Science program. No other demographic details regarding students' age, gender, race, culture, sexual identity, socio-economic class, country of origin, citizenship or any other identification category were collected. Out of the total 221 students, only 203 students completed both pre- and post-CBEL assignments. All these assignments were anonymized by an independent individual, who was not involved with the course and the research processes in any way, and were then shared electronically with the university's CCEL office.

Figure 1
Percentage of student responses coded across themes
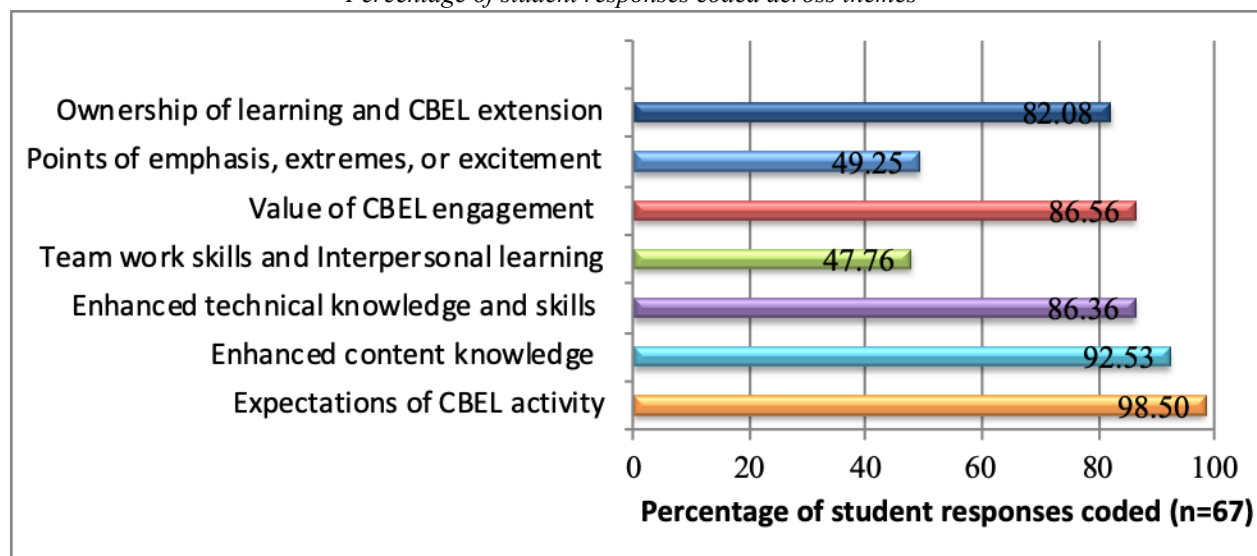
A team comprising four people—two CBEL experts, one graduate research assistant (one co-author) who had expertise in CBEL assessment and evaluation, and the Biology 1000 course instructor (the other co-author)—were involved in data analysis. An open-coding technique was employed to formulate the emerging themes and triangulate the data. All students' responses in the sample were coded across themes that emerged from the data which were analyzed qualitatively with the data analysis software NVivo. We acknowledge that this is primarily a qualitative study, however, to make these qualitative findings "appealing" to the members of the institution's Zoology and Botany departments (where most people are familiar and comfortable with quantitative representation of data) we "quantified" the responses by keeping track of the number of student responses coded across each theme and respective subthemes. In this study we report the "quantified" results based on the qualitative analysis of the first 67 randomized student responses. We consider these first 67 randomized student responses as representative of entire data corpus as subsequent analysis of remaining student responses did not yield any new themes.

Results

Our results indicate that by creating opportunities for students to relate their theoretical knowledge gained in the classroom with practical, hands-on learning in a real-world, outdoor, community setting, this CBEL experience served as a contextualized approach of making learning relevant and meaningful for Biology

1000 students. The main themes that emerged from the data show that almost all students gained a more nuanced or completely new understanding of ecological concepts. In addition, most students identified this CBEL experience as empowering, and they identified it as a valuable experience for themselves, for the community, country, and entire ecosystem. Many acknowledged that this experience has helped them in developing broader technical skills, which they can utilize in many other life contexts. Overall findings of the analysis of student responses coded across the key themes emerged are presented in Figure 1.

The following section includes details of each of the key themes as well as direct student quotes for each theme along with some pictures of Biology 1000 students engaged in CBEL activity:

Emerged Themes

Theme 1: Expectations of the CBEL activity. Prior to the experience 66 out of 67 (98.5%) students in our sample shared positive expectations of the upcoming CBEL experience. Recognizing that such experiences require hard work and could be challenging, most students enthusiastically identified their upcoming CBEL experience as a "fun, rewarding, interesting… educational, learning opportunity" which creates spaces for interactive team work as evident in the following student's quote: "I expect my field experience to be fun, rewarding, interesting, muddy, challenging, and a great opportunity to learn more about ecology." (Student 01_pre-CBEL Response). Similarly, another student expected the CBEL activity

Figure 2
CBEL Expectations: Twenty-one most common words

Figure 3
Overview of Enhanced Biology Content Knowledge

■ Number of students showing enhanced content knowledge

■ Number of students showing no demonstration of enhanced content knowledge
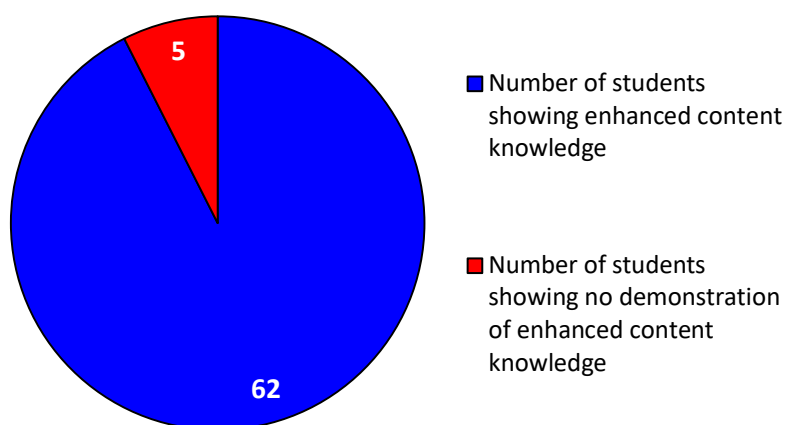
as an "Educational, interesting, labor, interactive, teamwork… (Student 09_pre-CBEL Response).

The twenty-one most common words that the students used to share their expectations of CBEL activity are shown in Figure 2, with the relative area assigned to each word representing the word's frequency. These most common words served as an informative framework for the instructor and gave the instructor an idea about whether most students were looking forward to going to the field or dreading it, whether they expected the CBEL activity to be very serious and rigorous or challenging-but-fun, and so on. These words also helped the instructor in making pedagogical decisions about the way the instructor talked about the CBEL activity in class.

Thus, through the students' expectations of CBEL activity, the instructor learned that students were going into the experience with a very positive mindset, expecting to have a "fun" experience, which they considered as "educational" and "interesting." The student responses expressing their expectations of CBEL activity as "work," "tiring," "hard," "challenging," "wet," and "dirty" helped the instructor in understanding that many students also had a very realistic view of what to expect of the CBEL activity: restoring an ecosystem is not just fun and excitement, it is also hard work in (sometimes) non-optimal conditions. Although these answers seem to show that students mostly expected the experience to be valuable for themselves (in terms of experiencing something positive, learning something and so on), the fact that students showed an overall positive expectation may speak to the idea that even an activity as simple as invasive species removal can be well-received by university students: students do not seem to feel like they are beyond this experience, or this is a too simplistic activity.

Theme 2: Enhanced content knowledge. The comparison of the 67 students' pre-CBEL responses to their post-CBEL responses revealed a positive impact of the CBEL activity. The experience of removing English ivy from City Park was clearly identified as a worthwhile component of Biology 1000 as after this activity, 62 out of 67 (92.53 %) students demonstrated enhanced content knowledge as indicated in Figure 3:

The majority of students (nearly 93%) gained a more nuanced or a completely new understanding of ecological concepts involved in the Biology 1000 course. Although there were some overlaps, we distinguished students' enhanced content knowledge as either more nuanced or completely new understandings. This distinction between more nuanced or completely new understandings was based on the shift in student's understandings as reflected in the comparison of their pre-and post-CBEL assignments. The more nuanced understandings involved a mention of certain biological concepts in the pre-CBEL assignment and a more comprehensive elaborated understanding of the same/similar concepts in the post-CBEL assignment of the particular student. Whereas when students post-CBEL assignments reflected a description or introduction of a new concept that was not mentioned in their pre-CBEL response to the same question, their responses were coded under the subtheme indicating completely new understandings.

Out of the 93% students who demonstrated enhanced content knowledge, 73% students exhibited a more nuanced understandings about a specific plant, English ivy, and its reproductive success, as well as physical features that make it a successful invasive species at the City Park. The following students' pre- and post-CBEL responses to the question, "What characteristics do you expect English Ivy to have that make it reproductively successful at City Park?", exemplify this shift in students' understanding. For instance, in their pre-CBEL response to this question, one of the students noted: "The [English ivy's] ability to reproduce in mass amounts as well as overtake the resources and nutrients from other plants" (Student 76_pre-CBEL response). In the post-CBEL response of the same student, we could see the shift in understanding from a generalized to a more specific content knowledge, as evident in the following quote:

> This plant is so reproductively successful at [City Park] because it has the ability to produce lots of offspring and it has physical characteristics that help it when it is in competition with other plants. For example, it has broad leaves, which absorb sunlight and cover other plants that grow on the ground leaving them to die without sunlight. (Student 76 post-CBEL response)

Thus, in the pre-CBEL response, this student has listed generic factors and characteristics about the English ivy that one could expect any reproductively successful plant to have (high reproductive abilities and being an effective competitor). Any plant that reproduces successfully and is a strong competitor will do very well in the particular ecosystem (City Park), and in this case, the student does not have a sense of whether any one of the two factors may be more relevant. Instead, the student thinks that both factors must be important. The student response does not include any details about what characteristics of the English ivy allegedly make it successful at reproduction (there is no information on how the plant might achieve this success); and there are no details about what makes this plant an effective competitor (no information on what these "resources" and "nutrients" might be).

In post-CBEL response there is only a gradual shift in student's understandings. Although, the student does show a bit more specificity referring to the plant's ability to "produce lots of offspring," there is only a small change in the way the student talks about reproductive success. The post-CBEL response includes details on what makes the plant a strong competitor as the student points out that it is the physical characteristics of the English ivy that give it its competitive edge and provides a specific example describing how a given physical characteristic of the ivy affects the ability of other plants to access a crucial resource. Thus, the student response indicates more nuanced or deeper understandings of the same aspects that were mentioned in the pre-CBEL response but does not reflect any new understandings.

In addition to developing the above evident more nuanced understandings, in many cases students' enhanced content knowledge was demonstrated in form of a completely new understanding which was present only in the post-CBEL responses and, therefore, most likely gained through the participation in the CBEL activity. This completely new understanding was evident in 74.6% of students' responses where they shared their new understandings of the specific invasive plant under study, as well as its impact on native plant species and their ecosystem, as reflected in following student's response: "[Reproductive success of English ivy is due to] The lack of natural predators which allow it to reproduce unchecked" (Student 03 pre-CBEL response).

Thus, in this case, the student in pre-CBEL response mentioned the "lack of natural predators" as the only reason for English ivy's reproductory success. However, in the post-CBEL response, the student also talked about the botanical features and growth habit of the English ivy, as well as its ecological interactions with other surrounding plants. As evident in the following response, the student indicated new understandings that were gained by engaging in the CBEL activity:

> English Ivy lacks natural predators at [City Park], which allow it to reproduce unchecked and completely outcompete the native species which do have predators. The ivy also crowd out other low vegetation by covering the forest floor and preventing sunlight from reaching the ground. They also climb up trees and shrubs and restrict the amount of sunlight that reaches the leaves of the native species. The added weight of the ivy can also make it difficult for the tree or the shrub to grow properly. English Ivy grows across the forest floor and up the trunks of trees. (Student 03 post-CBEL response)

Theme 3: Enhanced technical knowledge and skills. In their post-CBEL reflections, the majority of students (86.36%) indicated enhanced technical knowledge and skills which involved observational techniques and also the mechanical skills that they could use beyond the Biology 1000 course as evident in the student's response: "I practiced my vine/weed-pulling skills, which was challenging physical work. I also developed observation skills by noting the different plant species around me in the area we were working in…" (Student 38 post-CBEL response)

In addition to learning specific desired skills of observations that one may consider essential with regards to developing scientific aptitude, the students' responses also indicated their learning of step-wise strategic planning which is in alignment with the scientific methods. The student responses indicated that engaging in this CBEL activity made them cognizant that for successful eradication of invasive plant species, its correct identification, as well as strategic planning while removing the invasive species in a particular area/ecosystem, are crucial:

> The most challenging aspect of removing the ivy is finding its roots in order to remove the plant completely from the ground. The task of finding the roots involves tracing the vine through low lying foliage, which could pose a danger to your eyes, and the vine is often entangled with other vines. Ivy that grows on trees grows incredibly thick and requires heavy duty tools in order to remove them. However, there is no need to look for the ivy's roots. You need only to separate the ivy from its roots. (Student 03 post-CBEL response)

Many of these students acknowledged that the development of these technical skills will also help them in other life contexts such as gardening, while strategic planning could be applied to managing time and deadlines. These perceptions are exemplified by the following student response:

> I had never thought to go about an invasive species removal so strategically, pulling the Ivy out along the edges first and working your way in. It makes so much sense, considering how much Ivy there was at the park, since it'll keep the English Ivy from growing further out into the park. I thought that was an interesting tactic to learn about and participate in. I also think that concept is relevant in many ways to life in general, starting at the more threatening spots and then moving to the other parts of the patch that pose less of a threat. You could even relate that tactic to schoolwork and deadlines, completing what's due first and then working your way to whatever comes next. (Student 24 post-CBEL response)

Theme 4: Team work skills and interpersonal skills. While developing team work skills was not

specifically included as an intended learning outcome of this CBEL activity, it was interesting to note that 47.76% students acknowledged that by engaging in this CBEL activity they have learned how to work as a team and have also developed their interpersonal skills as represented in following students' responses: "Teamwork was one skill especially we practiced a lot in the park. I worked in a small group of three, and we found it much easier to remove the Ivy if we all focused on the same piece and gave each other feedback and help" (Student 05 post-CBEL response).

Thus, the students emphasized focused and collaborative teamwork where they were able to support each other in completing the assigned task through constructive feedback:

> Through the working experience in the Park, I learned and develop teamwork skills. My group and I found out that it was more efficient if one person held the bag, while two other people pulled the Ivies and the remaining person collected the Ivies from those two people who are in charge of pulling. In order to perform a successful flow of removing English Ivy, communications between members are extremely important. (Student 56_post-CBEL response)

In the above example, again the importance of open communication and shared team-work, where each member has a particular role to play, are emphasized as keys for "successful" and timely completion of task of removing the invasive species.

Theme 5: Value of CBEL engagement. Many students acknowledged that this CBEL activity motivated them to learn more about ecology and continue community engagement as it provided them with an outdoor learning opportunity that was physically satisfying, mentally strengthening and morally rewarding. In their post-CBEL responses, 86.6% students characterized this CBEL activity as a collaborative outdoor experience which is valuable not only for themselves, but also for the park, community, and the country, as well as for the entire global ecosystem, as evident in the following response:

> I genuinely believe that this project was most beneficial to the forest. Without this trip, I would not have realized the extent of damage invasive species inflict on our environment, it was truly an eye opener. As well, it made me more aware of all the people who are so involved and dedicated to making their community a better place, motivating me to learn more about ecology. (Student 14 post-CBEL response)

Sharing that this was their first experience of engaging and contributing at a community level, many expressed a sense of pride, as well as a desire to continue such engagements through volunteering and to learn more about ecological concepts. The following student responses reflect appreciation of the CBEL activity:

- "Personally, I feel proud and accomplished from working in [City Park]. In the duration of several hours, I had the taste of being an ecologist and also an ecosystem savior. Knowing that the environment has become healthier and sustainable from my help made me realize my capability and importance as a Canadian citizen: (Student 56 post-CBEL response).
- "Since I have never contributed to any work on the environment of a park, working at [City Park], removing invasive species, and allowing other native species to thrive, made me feel a sense of pride. Being able to say I tangibly contributed on an ecosystem!" (Student 55 post-CBEL response).
- "I very much enjoyed the trip to [City Park]. I appreciated being able to spend time outside with my peers and being able to help restore a weakened ecosystem at the same time. It did not feel like work at all, and my friend and I have decided that we want to volunteer doing similar work at [another] Park throughout the year" (Student 66 post-CBEL response).

Theme 6: Points of emphasis, extremes, or excitement. Indicating their involvement in the CBEL activity was an exciting one, almost half of the students (49.25%) utilized exclamation points, italics, and/or strong metaphors to show their enthusiasm for what they have learned through this CBEL experience. Some examples of varied sources of excitement during the CBEL engagement are evident in the following students' responses. One noted, "One of my most favorite parts, however, was seeing the salamander! I have only ever seen such species in places like the zoo or aquarium, so seeing such a cool animal in action in nature was really amazing!" (Student 01 post-CBEL response). Similarly, the students used exclamation marks to indicate their satisfaction and accomplishment: "I feel very satisfied about the work we accomplished at the park. With a lot of hard work, we managed to liberate two grown trees!" (Student 14 post-CBEL response). They felt proud of the contributions that they made in the community by "restoring the natural state," as evident in following quote: "The work I accomplished at [City Park] made me feel very proud that I was able to make (though small!) a contribution to restoring the natural state! (Student 01 post-CBEL response)

Theme 7 Ownership of Learning and Extension of CBEL experience. This CBEL experience motivated students to take ownership of creating their

own learning experiences. In their post-CBEL responses, more than 82% students provided recommendations that could help in making such experiences more worthwhile as well as suggested CBEL activities for future iterations of the Biology 1000 course. The student responses indicated their awareness of effect of pollution on the environment as evident in following student response:

> I find littering to be equally as damaging to an environment, where garbage such as aluminum cans can lead to paint spills in surrounding streams that could cause harm to organisms that live in the ecosystem. Something students could do is to pick up garbage around the park. (Student 13 post-CBEL response)

Thus, the student responses indicated their awareness of the "place" and the needs of the local community members, as well as the potential role that the Biology 1000 students could play in improving the natural environment and the community's engagement with it:

> Planting native species in order to make them more populous. This would benefit the plants and all of its consumers. Another activity students could do is create trails that run through the park so that users won't step on the many small shrubs and vegetation that lie on the forest soil (Student 21 post-CBEL response).

Discussion

The present findings of Biology 1000 students' involvement in a CBEL activity at City Park reverberates with the CBEL literature, as this experience not only resulted in enhanced content knowledge among most students, but also promoted development of additional technical skills, team work, and increased sense of social responsibility towards their own learning and contribution to the park, society, and ecosystem, the "place" with which they engaged.

Many students acknowledged that this CBEL experience motivated them to learn more about ecology and continue participating in CBEL activities as this experience provided them with an outdoor learning opportunity that was physically satisfying, mentally stimulating, and morally rewarding. The above findings are consistent with the literature on community-based experiential learning which suggests that CBEL experiences are an essential part of inquiry and can serve as a catalyst for enhancing students' learning and sense of social responsibility and civic engagement (Baldwin et al., 2007; Berman & Allen, 2012; Butin, 2007; Fusco, 2001; Harrison, Clayton, & Tilley-Lubbs, 2014; Myers-Lipton, 1998).

According to Dewey (1998), community-based learning experiences present students with experiences of inquiry which lead to dissonance and thus require students to take on complex roles often in unfamiliar and challenging situations. By critically reflecting on these experiences, students test and refine the knowledge and skills gained, utilize these to pose and examine new questions, and learn about themselves as learners.

The analysis of CBEL activity's impact on students' learning during their involvement in a Biology 1000 course resonates with the literature which posits that community engaged experiences have multiple positive impacts on students' learning regardless of the ways in which they are assessed (Eyler, 2000; Gemmel & Clayton, 2009; Kassabgy & El-Din, 2013; Warren, 2012). Similar to Bringle and Hatcher (1995) and Furco (2001)'s studies, the Biology 1000 students demonstrated enhanced academic learning when they engaged in CBEL activity. This experience allowed them to broaden their understandings of various ecological concepts which they learned theoretically in the Biology 1000 classroom, as well as to connect the theory with the practice by utilizing the course content learned in the classroom to engage in the hands-on tasks in a collaborative communal manner.

As indicated in the students' responses, the positive impact of the CBEL activity extended beyond the academic learning and induced deepened understandings of civic, social, moral responsibilities among Biology 1000 students, as also reported by Billig, Jesse, & Grimley (2008) and Wyss and Tai (2012). The students developed a sense of connection with the "place" as they were introduced to the ecosystem of the park, as well as to its uses by the public in recent history. However, considering the one-time, half-day aspect of the activity, we feel that in this CBEL activity, the "place" was present more in terms of the ecosystem (students were right there, in the ecosystem and its context) than in terms of community. The other aspect of "place" was that they worked on "helping" the ecosystem right in the ecosystem, alongside the professionals from City Parks, and thus were "immersed" in the community's ecological/ habitat restoration processes.

Thus, in alignment with the principles of CBEL and placed-based pedagogies, the students worked "with" the community "for" the sake of the community. Many of them expressed their desire to continue engaging in CBEL activities through varied volunteering opportunities, which indicated their perceived benefits of CBEL for self, local community, and wider global citizenry—as also mentioned by Soria &Thomas-Card (2014)—and willingness to "give back" to the community (Gray et al., 2000).

Limitations

Our goal here was to document the short-term impacts of the activity on the Biology 1000 students for resource justification and quality improvement purposes, so this study has several limitations. We acknowledge that due to the highly contextualized nature of this study, the findings cannot be generalized universally. Long-term follow-up with the students, as well as the instructors and community partners, may help in a more thorough investigation of the impact of CBEL activity on students' learning (Gelmon, 2000).

The utilization of students' reflections submitted in the form of pre-and post-CBEL responses also limits our ability to distinguish what the students actually feel and think from what they are able to express in their written responses, which were desired in English. This limitation could be addressed through a more rigorous data collection approach such as the one suggested by Polin and Keene (2010) where they used an ethnographic approach to collect additional forms of data. For assessing the changes in students' knowledge, skills, beliefs, and attitude regarding community involvement rather than relying solely on individual written responses, multiple sources of data could be used, *e,g*., focus group interviews, as well as exit interviews (taken by community partners with the help of interpreters if needed). The reflections collected as pre- and post-CBEL reflections could be replaced with Ash, Clayton, and Atkinson's (2005) series of reflection drafts to help gain insights regarding changes in students learning over the course of the term.

Conclusion

This study presents an independent assessment of the impact of CBEL activity on students' learning in an undergraduate science course in a large university. Even though the course instructor was actively involved in designing and implementing the CBEL activity and the preliminary coding for qualitative analysis, the overall analysis of students' responses was done independently by the university's Center of Community Engaged Learning's research professionals who were not involved in the teaching of the course and/or engaged with the students. Hence, as mentioned by Cooks, Scharrer, and Paredes' (2004), the results and insights generated from this study may have been different if the course instructor assessed students' responses.

Based on the above findings, this CBEL experience was deemed to be a worthwhile component of Biology 1000 and informed the future iterations of the course, as well as the teaching practices and curricular design in the course. At the time of writing, four more iterations of the CBEL activity have taken place, an indication that the course instructors and Biology Program, as well as the

CCEL and the community partner, found the collaboration to be fruitful. Furthermore, the data collected as part of this study contributed to securing departmental support in the form of an experienced, dedicated Graduate Teaching Assistant position to coordinate the CBEL activities: to enhance, adapt, and mark the pre- and post-assignments; and to assist with the refinement of in-class activities that connect to the CBEL experience. While the specific activities vary slightly from year to year, and the level of involvement differs among course sections, the use of CBEL to teach a part of the ecology unit, as well as the collaboration with City Parks, have now become regular aspects of Biology 1000.

The insights generated from this study may help inform integration of CBEL components in diverse disciplines in wider Canadian and international contexts that value community as a source of knowledge, serving as an example for other higher education institutes that wish to promote students' academic, civic, and personal growth and strengthen university-community partnerships. Future studies may be conducted to investigate the impact of CBEL activities on faculty members' teaching practices and course design, as well as on community partners' involvement in supporting and assessing students' learning, and the organizational role and values of universities as done in other contexts (for example, Jameson et al., 2012; Kimball, & Thomas, 2012; Shapiro, 2012).

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Acknowledgements

Factor Structure and Reliability of the Arabic Version of the Learning and Study Strategies Inventory: Second Edition (LASSI-II)

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Although there is a robust body of research that has addressed the psychometric properties of the Learning and Study Strategies Inventory (LASSI) in different populations, no study has yet investigated the factor structure and congeneric reliability of the Arabic version of the Learning and Study Strategies Inventory, 2nd edition (LASSI-II) among Egyptian undergraduates. This study examined the test factor structure, the underlying factor structure of the subscales, and the congeneric reliability (omega coefficient) of an adapted Arabic version of the LASSI-II. Participants were 303 Egyptian undergraduate students. Results of confirmatory factor analyses revealed that each subscale had satisfactory goodness-of-fit indices. Results also confirmed the three-factor model (ER-GO-CA) proposed by Olejnik and Nist (1992) and refined by Olaussen and Braten (1998). Finally, results indicated relatively high omega coefficients for the subscales ranging from a low of .65 (Study Aids) to a high of .86 (Self-testing). Implications and suggestions for future research are presented.

Effective learning and study strategies help undergraduate students achieve better learning outcomes. Three decades ago, Weinstein, Zimmermann, and Palmer (1988) highlighted the need to assess learning strategies for students prior to enrolling in academic programs to identify likely deficits in their learning profiles. Entwistle and McCune (2004) noted,

> There has recently been a great interest in describing and measuring the study strategies of students in higher education. This development is due to the increasing requirements on universities to justify public funding by demonstrating effectiveness and efficiency in their teaching (p. 325).

Measuring such strategies using standardized instruments helps educators know more about the strategies utilized by students in different educational contexts and helps them achieve better learning outcomes. It is accordingly very important that valid and reliable instruments should be used to measure learning and study strategies of undergraduate students in different populations.

Weinstein and Palmer (1987) developed the first version of the Learning and Study Strategies Inventory (LASSI-I) for undergraduate students as part of the cognitive learning project at the University of Austin, Texas. Weinstein and Palmer (1990) developed a version for high school students and called it (LASSI-HS). Since that time, it has become one of the most widespread instruments for measuring learning and study strategies. In 2002, they updated the first version of the LASSI-I for undergraduates and developed the second edition (LASSI-II).

The first and high school versions had 77 items. The second edition has 80 items. The additional three items were related to using recent technological resources in the study aids subscale. The difference between the LASSI-I and the LASSI-II does not lie only in the addition of three items, but also in the wording of other items as well. Accordingly, the LASSI has three versions, namely the LASSI-I (1st ed.) published in 1987; the high school version, LASSI-HS, published in 1988; and the LASSI-II (2nd ed.) published in 2002.

The LASSI-II assesses three components of strategic learning: skill, will, and self-regulation. This model is later known as the S-W-SR model of the learning and study strategies or the original model. The skill component of strategic learning has three subscales. The information processing subscale assesses how well students can use imagery, verbal elaboration, organization strategies, and reasoning skills as learning strategies to help them learn new information and skills and build bridges between what they already know and what they are trying to learn and remember (e.g., "Do students try to summarize or paraphrase their class reading assignments?"). The selecting main ideas subscale assesses student skill at identifying important information for further study (e.g., "Can students identify the key points in a lecture?"). The test strategies subscale assesses student use of both test preparation and test taking strategies (e.g., "Do students know how to study for tests in different types of courses?").

The will component of strategic learning has also three subscales. The anxiety subscale assesses the degree to which students worry about school and their academic performance (e.g., "Are students easily discouraged by low grades?"). The attitude subscale assesses student attitudes and interests in college and achieving academic success (e.g., "How clear are students about their own educational goals?"). The motivation subscale assesses student diligence, self-discipline, and willingness to exert the effort necessary to complete academic requirements successfully (e.g., "Do students stay up-to-date in class assignments?").

The self-regulation component of strategic learning has four subscales. The concentration subscale assesses student ability to direct and maintain attention on academic tasks (e.g., "Are students easily distracted?"). The self-testing subscale assesses student use of reviewing and comprehension monitoring techniques to determine level of information understanding or task to be learned (e.g., "Do the students review before a test?"). The study aids subscale assesses student use of support techniques, materials or resources to help them learn and remember new information (e.g., "Do students complete practice exercises?"). The time management subscale assesses student use of time management principles for academic tasks (e.g., "Are students well organized?").

The LASSI-II is used in different educational settings. It may be used as follows:

1) A screening measure to help students develop greater awareness of their learning and studying strengths and weaknesses, 2) A diagnostic measure to help identify areas in which students could benefit most from educational interventions, 3) A basis for planning individual prescriptions for both remediation and enrichment, 4) A means for instructors to use for examining individual students' scores and class trends to help them decide where to place the greatest emphasis for assignments, projects, individual logs, journals, portfolios and other class activities, 5) A pre-post achievement measure for students participating in programs or courses focusing on learning strategies and study skills, 6) An evaluation tool to assess the degree of success of intervention courses or programs and 7) An advising/counseling tool for college orientation programs, advisors, developmental education programs, learning assistance programs, and learning center (Weinstein & Palmer, 2002, p. 4).

Based on its various uses, Flowers (2003) reported, "[M]ore than 1,700 colleges and universities have used the LASSI to assess the extent to which students make use of study skills to learn new information in college" (p. 32). This is an indication of the widespread use of the LASSI for assessing student learning and study strategies. However, Olaussen and Braten (1998) explained that researchers should focus not only on the theoretical bases of the tool, but also on its applicability in different populations.

It thus seems reasonable to use the LASSI-II to assess the learning and study strategies of Egyptian undergraduates. In Egypt universities have centers for Education Quality Assurance (EQA) that help faculty members, as well as students, achieve better learning outcomes by offering various educational services.

These services include training workshops on learning strategies, measurement and assessment practices, and educational interventions.

Providing these centers with an adapted Arabic version of the LASSI-II would be a valuable tool to measure learning strategies. The significance of providing such centers with an adapted Arabic version of the LASSI-II is evident in its many uses as discussed earlier. However, the LASSI-II cannot be used within the new Egyptian population without investigating its factor structure and reliability. Accordingly, it is important to estimate the factor structure and score reliability of the LASSI-II among Egyptian undergraduates.

Validity and Score Reliability

Validity is an important property for a psychometrically sound instrument. Investigating the factor structure of educational and psychological instruments is an essential part of examining validity evidence. Construct validity refers to the capacity of the individual indicators proposed to load on the theoretical constructs that they are intended to represent (Rubin & Babbie, 2008). Factorial validity, as used interchangeably with construct validity, is very important when identifying the factor structure of an instrument. Said, Badru, and Shalid (2011) indicated that factor analysis is used to explore the factor structure and latent variables underlying a set of variables. Confirmatory factor analysis is used when the test is developed based on a theory. Thus, using confirmatory factor analysis within the scope of the present study is appropriate to estimate the factor structure of the adapted Arabic version of the LASSI-II.

Similarly, scores reliability is a vital psychometric property for instruments used in educational studies. Wilkinson and the APA Task Force on Statistical Inference (1999) asserted, "[A]uthors should provide reliability coefficients of the scores of the data being analyzed even when the focus of their research is not psychometric. Interpreting the size of observed effects requires an assessment of the reliability of the scores" (p. 596). A test is reliable to the extent to which scores based on the test are stable and accurate. In that sense, reliable instruments are trustworthy. Krach and McCreey (2010) indicated that both test developers and researchers should do their best to construct and validate reliable test instruments.

Concerning score reliability, a question arises regarding the form of reliability that should be used. This concern leads to a brief discussion of the three models of measurement that underlie estimation of scores reliability. Raykov (1997a) summarized these models and their assumptions. First, the parallel model assumes that items must have equal means, variances, and error variances. It is difficult to meet these

assumptions in the real-world data. Thus, this model is the most restrictive in estimating reliability of scores.

Second, the essentially-tau equivalent model assumes the same true score variance for all items, which is difficult to satisfy with real data. However, this model allows the true score means, as well as the error variances, to vary across items, which makes it less restrictive than the parallel model. Third, the congeneric model allows means, variances, and the error variances to vary across items, which makes it the least restrictive model of estimating scores reliability. Thus, the congeneric model gives the most accurate estimates of reliability among the three models simply because of its flexible assumptions.

Graham (2006) noted that alpha depends on the essentially-tau equivalent model of measurement that also assumes all items load on the same common factor with equal loadings. This assumption is also difficult to meet in the real-world data. Alpha therefore underestimates the reliability coefficient because of the probable violations of the essentially-tau equivalent model.

On the other hand, omega coefficient, introduced by Heise and Bohrnstedt in 1970, complies with the congeneric model of measurement that assumes all items load on the same common factor but allows for different loadings. Accordingly, many researchers have recently recommended using some alternatives to alpha such as omega as the latter gives more robust estimates (Cronbach & Shavelson, 2004; Dunn, Baguley, & Brunsden, 2014; Green, & Yang, 2009; Raykov, 1997a; Raykov, 1997b; Revelle, & Zinbarg, 2009). To date, no study was observed reported omega coefficients for estimating the score reliability of the LASSI-II. In that sense, estimating the score reliability of an adapted Arabic version of the LASSI-II using omega coefficients provides more precise and accurate estimates.

Factor Structure and Score Reliability of the LASSI-I

As attempts to validate the LASSI within different populations, a large body of research examined the factor structure of the LASSI-I and LASSI-HS. For instance, Murphy and Alexander (1998) investigated the factor structure of the LASSI-HS among 139 ninth grade Singaporean females. The results of exploratory factor structure failed to confirm the 10 subscales proposed in the user's manual. Similarly, Melancon (2002) used a sample of 502 undergraduates in New Orleans and found that the items do not necessarily measure the ten subscales proposed in the user's manual. Based on the results of exploratory factor analysis, he reported that fewer than 10 constructs were measured by the LASSI-I. However, Yip (2013) used exploratory factor analysis and indicated that the items

of the LASSI-I loaded on their hypothesized constructs as stated in the user's manual.

Thompson and Daniel (1996) indicated that researchers should examine different plausible models to find the one that best fits their data. Hence, some researchers conducted studies on the factor structure of the subscales of the LASSI and reached different models. Opposed to the original model proposed by the test authors, some researchers obtained other models for the LASSI-I and LASSI-HS. For instance, Olivarez and Tallent-Runnels (1994) examined the factor structure of the LASSI-HS among 367 students. The results of exploratory factor analysis indicated that the proposed model explained 68% of the total variance. The first factor consisted of the first five subscales: test strategies, anxiety, selecting main ideas, concentration, and attitude. The second factor consisted of the last five subscales: study aids, self-testing, information processing, motivation, and time management.

Olaussen and Braten (1998) used a sample of 173 first-year and 176 second-year Norwegian college, and the results of confirmatory factor analysis revealed a three-factor model. Based on the refinement of the model proposed by Olejnik and Nist (1992), Olaussen and Braten (1998) labeled them effort–related activities (motivation, time management, concentration, attitude, and test strategies), goal orientation (concentration, attitude, test strategies, anxiety, selecting main ideas, and information processing), and cognitive activities (selecting main ideas, information processing, study aids, and self-testing). Later, this model became known as the ER-GO-CA model of learning and study strategies.

In an attempt to confirm the ER-GO-CA model, Samuelstuen (2003) also investigated the underlying factor structure of the LASSI-HS subscales in Norwegian students. He used confirmatory factor analysis and identified the same model reported by Olaussen and Braten (1998) but with different subscales on the second latent factor: goal orientation (test strategies, anxiety, attitude, concentration, and selecting main ideas). Stevens and Tallent-Runnels (2004) used confirmatory factor analysis to identify the latent factors underlying the LASSI-HS subscales. They obtained the same model identified by Olaussen and Braten (1998).

On the other hand, some researchers investigated the factor structure of the LASSI-I and LASSI-HS and labelled the components differently. Murphy and Alexander (1998) used confirmatory factor analysis, identified a three-factor model, and labeled them affective/effort-related activities (time management, concentration, attitude, and motivation), cognitive activities (information processing, study aids, and self-testing), and anxiety/arousing activities (anxiety, selecting main ideas, and test strategies). Cano (2006) investigated the latent structure of the LASSI-I subscales

among undergraduates. He used confirmatory factor analysis, obtained a three-factor model, and labeled them affective strategies (motivation, time management, concentration, attitude, and self-testing), goal strategies (concentration, attitude, anxiety, test strategies, and selecting main ideas), and comprehension monitoring strategies (selecting main ideas, information processing, study aids, and self-testing).

Concerning the score reliability estimates of the LASSI-I reported in previous literature, Weinstein and Palmer (1987) found that alpha coefficients for the subscales ranged from a low of .68 (study aids) to a high of .86 (time management). In 1990, they concluded that alpha coefficients ranged from a low of .68 (study aids) to a high of .82 (anxiety and concentration) for the LASSI-HS. Olaussen and Braten (1998) reported alpha coefficients to range from a low of .68 (study aids) to a high of .84 (concentration). Melancon (2002) found alpha coefficients ranged from a low of .66 (study aids) to a high of .85 (concentration). Cano (2006) reported alpha coefficients from a low of .61 (attitude) to a high of .84 (time management). Study aids was found to have the lowest alpha coefficient in most of the studies reported above, whereas concentration and time management were found to have the highest alpha coefficient respectively.

Factor Structure and Scores Reliability of the LASSI-II

Compared to the LASSI-I, few studies have investigated the psychometric properties of the LASSI-II because it is a relatively recent version. Weinstein and Palmer (2002) did not use factor analysis to confirm the factor structure of the proposed constructs. They depended essentially on the views of experts concerning the relevance of items to their constructs, as well as the relevance of the subscales to the S-W-SR model. They also investigated the inter-scale correlations and found them to be significant, ranging from a low of .07 (anxiety × study aids) to a high of .67 (concentration × time management).

Flowers (2003) emphasized that additional validity evidence is needed on the factor structure of LASSI-II. Accordingly, Cubukcu (2007) indicated that, after the removal of a few items of the LASSI-II for psychometric reasons, the remaining items formed eight subscales (motivation, attitude, time management, concentration skills, test strategies, selecting main ideas, information processing, and study aids). Other researchers examined other forms of validity evidence for the LASSI-II. For instance, Mancuso (2008) examined the predictive validity of the LASSI-II among undergraduates, specifically assessing the LASSI's capacity to predict college success and retention. Results indicated that the LASSI-II was a significant predictor of college success.

Flowers, Bridges, and Moore (2012) examined the concurrent validity of the LASSI-II among African-American pre-collegiate students. Data analysis revealed that two of the 10 LASSI-II subscales (i.e., anxiety and test strategies) significantly correlated with a measure of academic ability. Finch, Cassady, and Jones (2016) recommended conducting other validity studies on the item level of the LASSI-II within new populations. This strengthens the need to conduct the present study within the Egyptian population.

Regarding the validation of the LASSI-II subscales, Prevatt, Petscher, Proctor, Hurst, and Adams (2006) compared both the ER-GO-CA model and the S-W-SR model among 297 college students. Based on the results of confirmatory factor analysis, their data supported the ER-GO-CA model. However, Yip (2013) examined the underlying factor structure subscales in 612 university students from Hong Kong. Using confirmatory factor analysis, the results revealed that the best-fitting model was a three-factor model similar to the S-W-SR model proposed by the test authors (Weinstein & Palmer, 2002). Thus, it seems obvious that the two competing models were (1) the original S-W-SR model proposed by the test authors, Weinstein and Palmer (2002), and (2) the ER-GO-CA model proposed by Olejnik and Nist (1992) and refined by Olaussen and Braten (1998).

As for the score reliability estimates of the LASSI-II reported in previous research, Weinstein and Palmer (2002) found that alpha coefficients for the subscales ranged from a low of .73 (study aids) to a high of .89 (selecting main ideas). Flowers (2003) emphasized that other research should be conducted to investigate the scores reliability of the subscales, especially on the second edition. He added that less research has been done on the second edition compared to the first edition.

Accordingly, numerous researchers conducted several studies and examined the reliability and use of the LASSI-II to assess learning strategies of students in different populations. For instance, Prevatt et al. (2006) investigated the reliability of the LASSI-II and found that alpha coefficients ranged from a low of .66 (study aids) to a high of .91 (concentration). Cubukcu (2007) reported that alpha coefficients ranged from .73 to .85 among Turkish students. Yip (2007) reported that alpha coefficient ranged from .60 (attitude) to .81 (motivation) for Chinese students. Iqbal, Sohal, and Shahzad (2010) also reported that alpha coefficients ranged from a low of .68 to a high of .82 for Pakistani students. Study aids was also found to have the lowest alpha coefficient in most of the studies reported above.

The Present Study

Based on the previous review, there has been less research done on the factor structure of the LASSI-II compared to the LASSI-I. In more details, many of the studies reported thus far were conducted using the LASSI-I (Cano, 2006; Melancon, 2002; Olaussen & Braten, 1998; Weinstein & Palmer, 1987; Yip, 2013). Others were conducted using the LASSI-HS within different populations (Murphy & Alexander, 1998; Olivarez & Tallent-Runnels, 1994; Samuelstuen, 2003; Stevens & Tallent-Runnels, 2004). Some studies also investigated the underlying factor structure, other types of validity, and reliability of the LASSI-II within different populations (Cubukcu, 2007; Flowers et al., 2012; Mancuso, 2008; Prevatt et al., 2006). However, very little attention has been paid by researchers concerning the psychometrics properties of the LASSI-II in the Arab countries.

A review of literature published in Egypt revealed a paucity of research investigating Egyptian undergraduate learning and study strategies. Only two correlational studies were identified: one by Ahmed (2010) and the other by Rashed and Eltayeb (2009). They did not conduct factor analysis of the translated LASSI-II adopted in their studies that consequently limits the use and applicability of their results. Thus far, there has been no published investigation of the factor structure of the items, the underlying factor structure for the subscales, and the congeneric reliability (omega coefficient) of an adapted Arabic version of the LASSI-II among Egyptian undergraduates. Accordingly, it is appropriate to investigate the factor structure of the Arabic version of the LASSI-II using confirmatory factor analysis.

The present study tries to fill the gap identified through the review of literature by addressing the following questions: (1) Does the Arabic version of the LASSI-II items fit their proposed theoretical constructs (subscales)?, (2) What is the underlying factor structure of the Arabic version of the LASSI-II subscales based on comparing the two competing models of learning and study strategies?, and (3) Are the omega reliability coefficients of the Arabic version of the LASSI-II subscales large enough to indicate that the subscales have acceptable levels of score reliability?

In this study, such questions are addressed. In other words, addressing these issues contributes to the educational and psychological literature of measuring learning and study strategies especially in the Arab community by presenting a validated version of the LASSI-II. Additionally, using the congeneric model of measurement (omega coefficients) to estimate score reliability is regarded a unique contribution of the present study.

Method

Participants

All participants were third-year undergraduate students enrolled at South Valley University, Egypt. Participants were 303 students (108 males [35.64%], 195 females [64.36%], M_{age}= 20.15 years; age range: 19-22 years). One hundred and fifty-one (51.16%) of the participants were from literary colleges (Education and Arts), whereas 148 (48.84%) of the participants were from scientific colleges (Veterinary Medicine, Engineering, and Science). They participated in the study voluntarily. All participants completed an adapted Arabic version of the LASSI-II.

Instruments

An adapted Arabic version of the LASSI-II was used in the present study. It assesses 10 subscales of learning and study strategies: information processing, selecting main ideas, test strategies, anxiety, attitude, motivation, concentration, self-testing, study aids, and time management. The inventory has 80 items, eight for each subscale. Each item is a statement that participants rate on a 5-point Likert scale ranging from "totally applicable for me" to "totally inapplicable for me". There is no total score of the LASSI-II because it is a diagnostic instrument.

Procedures

Before data collection, the LASSI-II was translated into Arabic utilizing the back-translation technique (Brislin, 1970). Translating the LASSI-II went through many steps. Firstly, two bilingual professors and I translated the inventory into Arabic. Secondly, the preliminary translated version and the original version were handed to two other bilingual educational psychology professors to review each item and ascertain the accuracy of translation and comparability of meaning. They made few changes, and corrections were carried out accordingly. Thirdly, another bilingual educational psychology professor translated it back into English. Finally, the original version was compared with the back-translated version, and similarity was found between them. This indicated the accuracy of the Arabic translated version and its appropriateness to measure the same learning and study strategies measured by the original LASSI-II.

Then educational authorities were contacted to seek permission to administer the instrument. Teaching assistants distributed the instrument to the students in their various classes in the spring of 2013 and explained briefly but clearly the purpose of the study and how to complete the instrument. Finally, responses were collected and scored.

Table 1
Goodness-of-Fit Indices for the Factor Structures of the LASSI-II Items (N=303)

Subscale	df	χ^2	χ^2/df	GFI	AGFI	RMSEA
INP	20	72.80***	3.64	.93	.89	.080
SMI	14	19.21	1.37	.98	.96	.035
TST	20	27.81	1.39	.98	.96	.036
ANX	20	86.74***	4.33	.93	.87	.070
ATT	14	42.80***	3.05	.96	.92	.073
MOT	20	57.55***	2.88	.95	.91	.079
CON	20	58.25***	2.91	.95	.91	.079
SFT	20	76.25***	3.81	.90	.82	.080
STA	20	89.87***	4.49	.92	.86	.078
TMT	20	77.83***	3.89	.93	.88	.077

Note. INP = information processing; SMI = selecting main ideas; TST = test strategies; ANX = anxiety; ATT = attitude; MOT = motivation; CON = concentration; SFT = self-testing; STA = study aids; TMT = time management. χ^2 = chi-square statistics; GFI = goodness-of- fit index; AGFI = adjusted goodness-of- fit index; RMSEA = root mean square error approximation.
***P <. 001

Results

Before conducting data analysis, data screening was conducted for accuracy purposes. Confirmatory factor analysis was utilized for investigating the factor structure of items and subscales of the LASSI-II. The objective was to confirm or reject the proposed models. The results were presented based on the sequence of the research questions as follows:

The Factor Structure of the LASSI-II on the Item Level

To examine whether the LASSI-II items load on their proposed subscales, confirmatory factor analysis was conducted using jMetrik software (version 2), a user-friendly computer software for item analysis (Meyer, 2011). In the present study, model fit for each subscale was evaluated using χ2 statistics, χ2/*df*, goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and root mean square error of approximation (RMSEA). Thompson and Daniel (1996) stated that reliance on chi-square and degrees of freedom to test model fit is problematic as it is sensitive to large sample sizes that lead to inflated values. However, these values should still be reported. Accordingly, χ2/*df* should be computed and reported to adjust for sample size.

The standard fit indices accepted in related previous research were χ2/*df* (0-5), GFI ≥ .90, and AGFI ≥ .80. RMSEA values ≤ .06 indicate a close fit, and values up to .08 are acceptable (Brown, 2006; Hu & Bentler, 1999; Steiger, 1990). Hoe (2008) reported, "RMSEA run on a continuum from 0 to 1. Values less than .05 indicate good fit, values up to .08 indicate reasonable fit, and ones up to .10 indicate mediocre fit" (p. 78).

Based on the confirmatory factor analysis results, two items were deleted because of their small loadings on their hypothesized subscales. Their deletion resulted in improving the fit indices as well as reliability coefficients. The first item belonged to the selecting main idea subscale and had a loading of .16. This item asked about "taking notes in the class." The second item belonged to the attitude subscale that had a loading of -.19. This item asked if "the time of finishing study does not matter if a student has enough time,"

Table 1 shows the goodness-of-fit indices for the 10 subscales. Based on the heretofore-mentioned fit indices, eight subscales had good fit indices: namely, information processing, anxiety, motivation, concentartion, self-testing, study aids, and time management.

The selecting main ideas subscale had the best fit indices among the 10 subscales. The fit index values were χ2/*df* = 1.37; GFI = .98; AGFI = .96; and RMSEA = .035. On the other hand, the self-testing subscale had the least reasonable fit indices among the 10 subscales. The fit index values were χ2/*df* = 3.81; GFI = .90; AGFI = .82; and RMSEA = .080. However, these values were within the acceptable range. In summary, the factor structure of the 10 LASSI-II subscales had satisfactory fit indices among Egyptian undergraduates. Accordingly, the adapted Arabic version of the LASSI-II can very likely be used for measuring learning strategies and for research purposes in Arab-speaking countries.

The Underlying Factor Structure of the 10 LASSI-II Subscales

To identify the underlying factor structure of the Arabic version of the LASSI-II subscales, the original S-W-SR model was compared to the ER-GO-CA

Table 2
Goodness-of-Fit Indices of the Underlying Factor Structure of the Two Competing Models for the LASSI-II Subscales (N = 303)

Model	df	χ2	χ2/df	GFI	AGFI	CFI	RFI	RMSEA	90 % CI
S-W-SR	32	402.22****	12.57	.79	.64	.83	.74	.196	(.18-.21)
ER-GO-CA	30	120.77****	4.03	.93	.86	.95	.90	.079	(.072-.086)

Note. S-W-SR = skill-will-self-regulation; ER-Go-CA = effort related-goal orientation-cognitive activities. χ2 = chi-square statistics; GFI = goodness-of- fit index; AGFI = adjusted goodness-of- fit index; CFI = comparative fit index; RFI = relative fit index; RMSEA = root mean square error approximation; CI = confidence intervals.
 ****P < .0001

Figure 1
Standardized maximum likelihood estimates of correlation coefficients for model (S-W-SR) model of the LASSI-II. S = skill; W = will; SR = self-regulation.
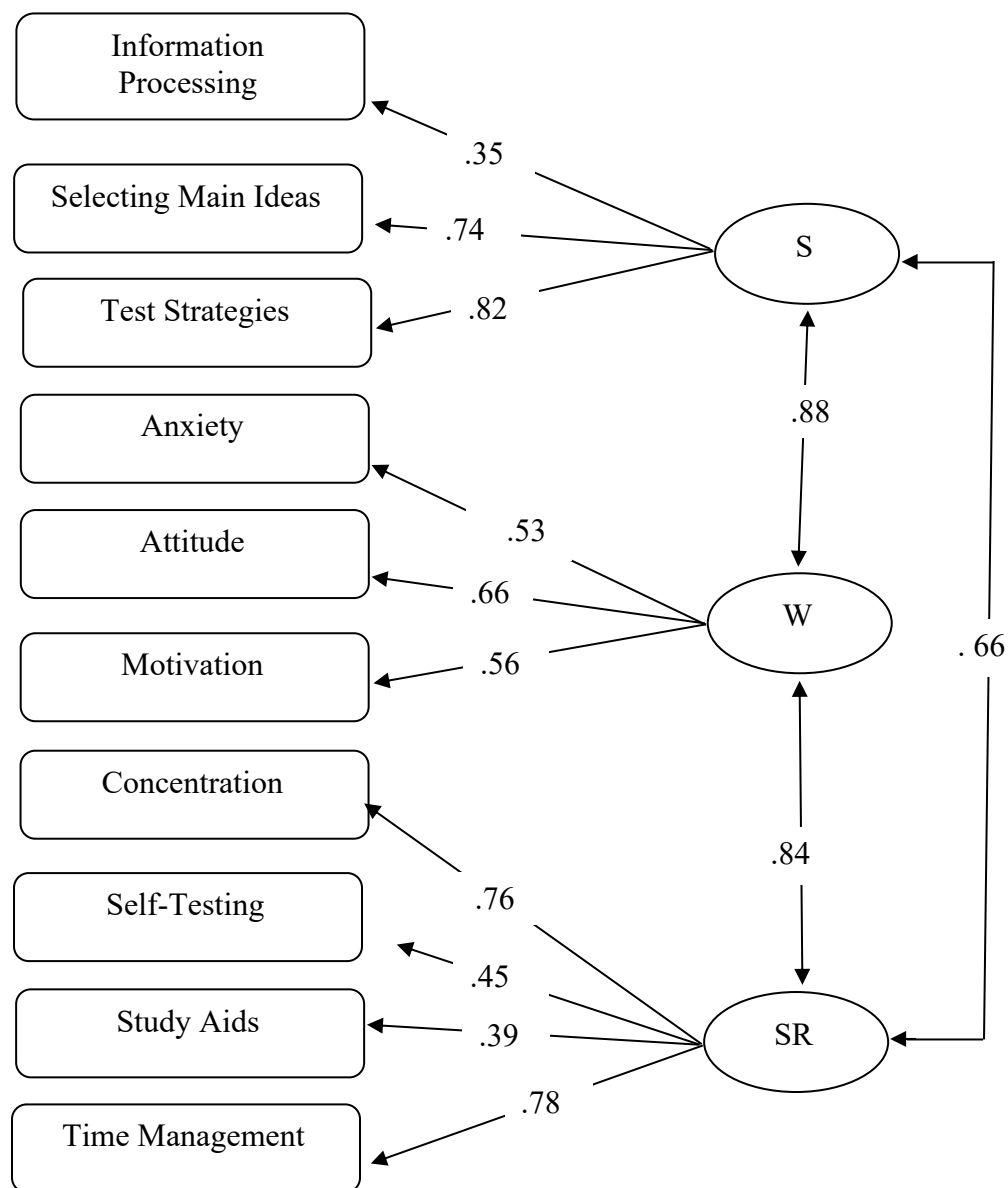
model. Two confirmatory factor analyses (CFAs) were conducted with maximum likelihood (ML) using LISREL 8.80 for Windows (Jöreskog & Sörbom, 2006). In the present study, the fit indices for the two competing models were evaluated using the previous criteria. Two new indices were added—the comparative fit index (CFI) and the relative fit index (RFI)—as they help compare the best fit of the two competing models. Both CFI and RFI should be ≥ .90 for an acceptable fit. Additionally, RMSEA Confidence Intervals (CI) for RMSEA were added.

Table 2 shows the results of the two competing models. According to these results, the ER-GO-CA model had better fit than the S-W-SR model based on the accepted criteria discussed earlier. This implies that the ER-GO-CA model is consistent with the population covariance matrix. In other words, this also indicates little difference between the observed and reproduced covariance matrices.

Figure 1 shows the standardized maximum likelihood estimates of the correlation coefficients among the three latent factors and the subscales of the S-W-SR model. Based on the results, the ER-GO-CA model was adopted as it best fits the Egyptian data. The latent factors were labeled the same as those by Olaussen and Braten (1998).

Figure 2 shows the standardized maximum likelihood estimates of the correlation coefficients among the three latent factors and the subscales. The first latent factor (effort-related activities) captured motivation, time management, concentration, and the revised attitude subscales. This factor was strongly correlated to the time management subscale, $r = .77$. The second latent factor (goal orientation) captured concentration, attitude, test strategies, anxiety, and the revised selecting main ideas subscales. This factor was strongly correlated to the test strategies subscale, $r = .82$. The third latent factor (cognitive activities) captures information processing, self-testing, and study aids subscales. This factor was strongly correlated to the self-testing subscale, $r = .79$. The correlation coefficient between the effort-related activities factor and the cognitive activities factor was .62. In addition, the correlation coefficient between the effort-related activities factor and the goal orientation factor was .60. The correlation coefficient between the goal orientation factor, and the cognitive activities factor was .23.

Congeneric Reliability (Omega Coefficients)

To estimate the omega reliability coefficients of the LASSI-II subscales and compare them to alpha coefficients, confirmatory factor analysis was also conducted. Table 3 shows the means, standard deviations, the congeneric reliability estimates (omega

coefficients), and alpha coefficients for the LASSI-II subscales. Omega values for the subscales ranged from a low of .65 (Study Aids) to a high of .86 (Self-testing). On the other hand, alpha values ranged from a low of .63 (Study Aids) to a high of .82 (Self-testing).

These results confirmed the study hypothesis that alpha underestimates reliability. Thus, omega is preferred. Some subscales had better omega coefficients after the deletion of some items as discussed earlier. For instance, Ω was found to be .78 for selecting main ideas, and $\Omega = .67$ for attitude. Generally speaking, omega reliability coefficients of the LASSI-II subscales are satisfactory for use within the Egyptian population.

Discussion

This study examined the test factor structure on the item level, the underlying factor structure of the subscales, and the congeneric reliability (omega coefficient) of an adapted Arabic version of the LASSI-II among Egyptian undergraduates. The first purpose of the study was to investigate the factor structure of the LASSI-II on the item level as recommended by recent publications. Initially, the instrument developers did not examine the factor structure of the items.

The results of this study were consistent with the results reported by Yip (2013) that the inventory measures the 10 subscales reported in the user's manual. However, the results of the study were not consistent with the results of other studies (Cubukcu, 2007; Melancon, 2002; Murphy & Alexander, 1998), which indicated that fewer than 10 subscales may be measured by the inventory.

The second purpose of the study was to investigate the latent factor structure among the 10 subscales of the LASSI-II. Two competing models were examined using CFA. The results revealed that data fits well the ER-GO-CA model proposed by Olejnik and Nist (1992) and refined by Olaussen and Braten (1998). The results of the present study were consistent with the results reported by other researchers (Cano, 2006; Olaussen, & Braten, 1998; Prevatt et al, 2006; Samuelstuen, 2003). On the other hand, the results of the present study were not consistent with the results reported in other studies (Weinstein, & Palmer, 2002; Yip, 2013).

That a different model was confirmed from that proposed by the test authors may be explained by the fact that the test authors developed the test based upon expert opinions that might not be consistent with the results from statistical techniques such as the confirmatory analyses. In other words, the ER-GO-CA model seems to have a theoretical and empirical framework that has increased its goodness-of-fit to the data collected in the present study. To conclude, the S-

Table 3
Means, Standard Deviations, and Reliability Coefficients (Omega/Alpha) for the LASSI-II Subscales (N=303)

Subscale	INP	SMI	TST	ANX	ATT	MOT	CON	SFT	STA	TMT
M	28.84	20.99	24.95	18.24	24.64	30.32	21.93	26.67	27.72	23.15
SD	4.71	5.09	5.63	6.04	5.05	5.41	5.22	5.97	4.81	5.28
Omega	.73	.78	.71	.80	.67	. 77	.79	.86	.65	.76
Alpha	.71	.71	.70	.77	.65	.76	.67	.82	.63	.67

Note. INP = information processing; SMI = selecting main ideas; TST = test strategies; ANX = anxiety; ATT = attitude; MOT = motivation; CON = concentration; SFT = self-testing; STA = study aids; TMT = time management. Alpha values were provided to illustrate how alpha underestimates scores reliability coefficients and not as an objective of the present study.
*$P < .05$, **$P < .01$

Figure 2
Standardized maximum likelihood estimates of correlation coefficients for (ER-GO-CA) model of the LASSI-II. ER = effort-related activities; GO = goal orientation; CA = cognitive activities.
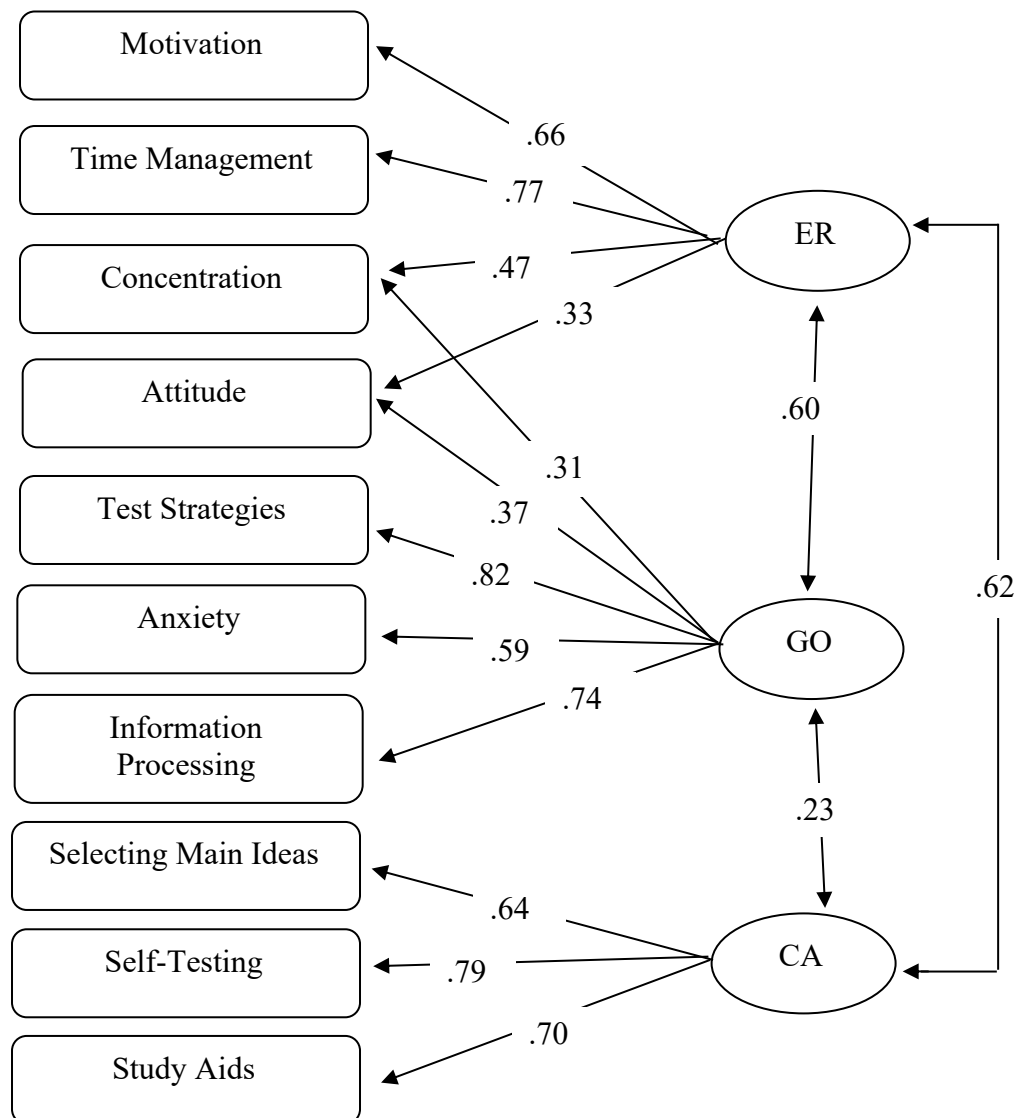
W-SR model is theoretical, whereas the ER-GO-CA model is empirical and data-based. It was confirmed by many empirical studies as discussed in the review of the literature.

The effort-related activities factor captured the subscales that required effort, persistence, and desire to work hard, such as motivation and time management. The goal orientation factor captured the subscale that required students to set their goals, such as selecting main ideas. It also captured the subscales that were related to affective strategies, such as anxiety, and test strategies. The cognitive activities factor captured the subscales that required some cognitive abilities such as information processing and self-testing. To sum up, there was empirical evidence for the ER-GO-CA model compared to the S-W-SR model. Accordingly, the ER-GO-CA model should be used.

The LASSI-II is multidimensional, and some of the subscales were captured by more than one latent variable, which means that these latent constructs are more complex than what was proposed by the inventory authors. It should also be noted that there is a strong relationship between the effort-related activities factor and the cognitive activities factor. This may due to the nature of the subscales in both components that require motivation to use study aids and concentration to process information effectively, etc. On the other hand, there is a weak relationship between the goal orientation factor and the cognitive activities factor. This may due to that fact that anxiety as one of the subscales of the goal orientation component may be negatively correlated to information processing, self-testing, and study aids as subscales comprising the cognitive activities component.

The third purpose of the study was to estimate the congeneric reliability of the LASSI-II. Omega coefficients ranged from a low of .65 (Study Aids) to a high of .86 (Self-testing). On the other hand, alpha coefficients ranged from a low of .63 (Study Aids) to a high of .82 (Self-testing). Some of these coefficients were comparable, and others (attitude and study aids) were lower than those reported in the LASSI-II user's manual (Weinstein & Palmer, 2002).

Given the fact that reliability is a property of the scores and not an absolute property of the test, student attitudes and student use of study aids may differ from one society to another. This difference may affect student responses and consequently lower score reliability coefficients. Accordingly, attitude and study aids subscales are reliable given the fact that there is psychometric literature that documented that a reliability coefficient greater than or equal to .65 is considered acceptable.

In addition, these results were in agreement with the results of some researchers such as Prevatt et al. (2006), who indicated that the study aids subscale had the lowest reliability coefficient among all subscales. In general, there was consistency between the results of the present study and previous research that reported similar coefficients to those mentioned in the user's manual (Iqbal et al., 2010; Yip, 2007; Yip, 2013). Using congeneric reliability was considered an advantage of this study as compared to all related previous studies that used the alpha coefficient for estimating scores reliability. In general, the LASSI-II subscales were consistent and stable for Egyptian undergraduates.

Limitations and Directions for Future Research

There were some limitations to the present study. First, it only addressed two aspects of score reliability, i.e., alpha and omega; other research may utilize generalizability theory. Second, it only covered one form of validity evidence, construct validity. Thus, future research may investigate concurrent or predictive forms of validity of the LASSI-II within the Arab community.

Another limitation is that students participating in the present study were all attending the same university. Cultural differences may exist between students in Egypt and other countries in the Arab world. These differences may affect student responses on the LASSI-II. Thus, subsequent research may examine the psychometric properties of the LASSI-II among other populations in the Arab countries.

In other words, the original 10-factor model for LASSI-II (Weinstein & Palmer, 2002) needs to be cross-validated with different samples and within different populations. Based on the adapted and psychometrically validated Arabic version of the LASSI-II, comparing and contrasting the profiles of learning and study strategies of different populations of students may be another useful direction for future research. Other studies may use the different IRT models to further investigate the psychometric properties of the LASSI-II.

Conclusion

In conclusion, this adapted Arabic version of the LASSI-II will provide students, educators, faculty members, and stakeholders with a psychometrically validated instrument for measuring learning and study strategies in Egypt in particular and in the Arab world in general. The validated instrument may also be used in different projects to assess the learning and strategies utilized by college students in different academic settings. Assessing the learning and study strategies of Egyptian undergraduates using a validated instrument will also help in identifying

student deficits and in planning intervention programs to promote success in college.

Additionally, assessing student learning and study strategies is central to improving the intended learning outcomes. Finally, alongside with research in western countries, researchers from the Arab world may use the new validated instrument in conducting correlational research to investigate the relationship between learning and study strategies and other educational variables such as self-efficacy, personality traits, thinking styles, and so on.

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Advancing Healthy and Socially Just Schools and Communities: An Interdisciplinary Graduate Program

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Advancing Healthy and Socially Just Schools and Communities is a four-course graduate certificate program collaboratively developed by an interdisciplinary team comprised of faculty from the fields of Social Work and Education at a Canadian university. The aim of this program is to facilitate systems-level change through enhancing the knowledge and skills of graduate students from disciplines such as social work, education, and nursing who work with youth in schools and communities. The ultimate goal of this systems-level change is promotion of healthy youth relationships and prevention of violence. The topics for the four courses in the program include the following: promoting healthy relationships and preventing interpersonal violence, recognizing and counteracting oppression and structural violence, addressing trauma and building resilience, and fostering advocacy and community in the context of social justice. The development and pedagogy of the certificate program are described, along with findings from a pilot study designed to examine the utility and feasibility of the initial certificate offering. Experiences with the program to date highlight the potential for improvements in graduate students' attitudes, beliefs, and confidence regarding what constitutes violence and their role in responding to it.

Intimate partner violence is a global public health problem with significant physical, social, emotional, and economic costs (García-Moreno et al., 2015; World Health Organization, 2010). In Canada, intimate partner violence accounts for approximately 25% of all police-reported violent crime, and it is the most common form of violent crime committed against females (Beaupré, 2015; Sinha, 2013). Thus, prevention of intimate partner violence is a pressing public health task. To this end, the promotion of healthy relationships in youth[1] appears to be a key strategy for the prevention of intimate partner violence in adulthood (Exner-Cortens, Eckenrode, Bunge, & Rothman, 2017). In this promotion work, ecological models of violence prevention indicate the need to focus upstream with prevention efforts in order to target the systems and environments with which youth engage on a regular basis (Niolon et al., 2017). Upstream thinking and action involve focusing on prevention in the context of the systems and environments that influence the health of populations (Canadian Council on the Social Determinants on Health, 2015; Stamler & Yiu, 2012).

In this article, we introduce Advancing Healthy and Socially Just Schools and Communities (AHSJSC), a four-course graduate certificate program

collaboratively developed by an interdisciplinary team comprised of faculty from the fields of Social Work and Education at a university in Canada. The aim of AHSJSC is to facilitate systems-level change by inviting graduate students in the professions of education, social work, and nursing to advance the knowledge and skills needed to promote healthy relationship skills and create healthy environments for all youth, regardless of race, creed, ancestry, ability, color, gender identification, or sexual orientation. Systems change is an intentional process designed to alter the status quo by shifting and realigning the form, function, and/or structure of an identified system (e.g., the school system) with purposeful interventions, such as AHSJSC (Abercrombie et al., 2015; Foster-Fishman et al., 2007). Systems change is rooted in action, and it aims to bring about lasting change by altering underlying structures and supporting mechanisms which make a system operate in a particular way. These underlying structures and mechanisms include policies, routines, relationships, resources, power structures, values, and culture. The ultimate goal of systems change is an ongoing process of innovation, reflection, and learning in order to bring about social change that alters the structure and rules of a social system (Abercrombie et al, 2015).

The research problem in this pilot evaluation of AHSJSC involved the examination of the feasibility and utility of this certificate program in the context of evaluating graduate students' acquisition of content (e.g., attitudes, beliefs, knowledge, confidence, and skills) and reaction to this content (e.g., learning, enthusiasm, organization, group interaction, and individual rapport) over the course of the initial program year (Kistin & Silverstein, 2016). In essence, we were exploring changes in graduate students'

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[1] Emerging from work on adolescent dating violence, the field of healthy youth relationships typically covers the age range of 10-17 (i.e., early and mid-adolescence or middle and high school; Exner-Cortens, 2014). In this article, the term healthy youth relationships thus refers to those in this age range. For a recent review of literature connecting teen dating violence with adult intimate partner violence, see Park, Mulford, & Blachman-Demner (2018).

capacity to promote healthy relationships in youth with the longer-term objective of preventing violence in adulthood. In this article, we outline the theoretical framework that served as the foundation for AHSJSC, as well as describe the methods and findings of our pilot evaluation. We conclude the article with a discussion of potential implications of this work for future research and practice.

Theoretical Framework

Increasing the knowledge and capabilities of teachers and those who work with youth, such as social workers and nurses, about how to help youth develop healthy relationships is a key lever for significantly reducing rates of bullying and dating violence, both of which are implicated in pathways to adult intimate partner violence (e.g., Exner-Cortens et al., 2017; Pepler, Craig, & Haner, 2012). In the case of healthy relationships promotion and dating violence prevention, a lot of work has been conducted within disciplinary silos, an approach which is limited given the multiple systems with a responsibility for violence prevention (Crooks et al., 2018); thus, our strategy of training the multiple professions that interface with youth in school buildings works toward creating multi-sectoral capacity and systems change for healthy relationships promotion. Evidence-based health promotion and risk behavior prevention programs that address positive youth development are associated with improvements in academic achievement, interpersonal skills, quality of adult and peer relationships, and reductions in risk behaviors such as alcohol and drug use, high risk sexual behavior, violence, and aggression (Greenberg et al., 2003). Positive relationships at school also have a protective effect: youth who are connected to school are more likely to stay in school, achieve academically, and enjoy better health, and they are also less likely to be involved in violent relationships or engage in risk behaviors (Joint Consortium on School Health, 2010; Pepler et al, 2012). Finally, teaching children and youth in school- and community-based settings about how to develop and sustain healthy relationships is critical to violence prevention generally (Allison, Edmonds, Wilson, Pope, & Farrell, 2011; Pepler et al, 2012; Wells, Campbell, & Dozois, 2014).

However, an approach to the development of healthy relationship skills will not be effective unless educators and other adults who have relationships with youth have the knowledge and skills required to ensure a safe, healthy, and just learning environment (Jennings & Greenberg, 2009; Kallestad & Olweus 2003). A strategic, coordinated, and comprehensive whole school approach to violence prevention and building healthy relationships provides children and youth with opportunities to learn and practice social-emotional skills that contribute to forming and maintaining positive relationships, managing emotions, and resolving conflict peacefully (Crooks, Chiodo, Zwarych, Hughes, & Wolfe, 2013; Joint Consortium for School Health, 2010). By involving the community as well, this approach includes the multiple stakeholders (e.g., all school staff, students, families, and community partners) needed to promote safe, caring, and socially just environments for all youth.

Although the important role that schools and school systems play in promoting social justice, as well as in preventing and reducing bullying and dating violence, is recognized (Walker & Shinn, 2002), there is a significant gap between the ideal integrated prevention model and what currently exists in most schools and school systems (Greenberg et al., 2003). Particularly, due to time and resource constraints faced in the school setting, there can be difficulty implementing, coordinating, and sustaining programs that address social, emotional, and academic learning. A focus on programs alone – as opposed to general teaching practices or higher-level strategies – is also insufficient to ensure systems change for violence prevention. There has also been a predominant focus on providing professional development to educators as part of prevention initiatives; however, it is important to mobilize all adults in a school building, including teachers, parents, and community leaders, to work alongside children to create an environment where healthy relationships are encouraged as part of integrated prevention (Pepler & Craig, 2007). AHSJSC was designed with a focus on addressing some of these gaps. In particular, social-emotional learning in the context of violence prevention and healthy relationships promotion was explored pragmatically, at the level of the classroom and the school, as well as at a philosophical/theoretical level in the examination of relevant polices locally, provincially, and nationally.

For a comprehensive approach within a school environment, the first step is awareness of the importance of providing a safe, protected environment for all students and staff in schools (Jaffe, Crooks, & Watson, 2009). Moving beyond awareness, educators face the difficulty of how to help youth develop healthy relationship skills through creating curriculum opportunities, prosocial learning environments, and reasonable behavior policies, as well as home and community partnerships. Through a focus on awareness and skill-building, graduate level, interdisciplinary university courses designed for students working with youth are essential for developing the knowledge and capacities necessary for taking comprehensive action to build social justice awareness, social-emotional competence, and healthy relationships.

AHSJSC originated within Shift: The Project to End Domestic Violence (2016), a research group within a

Figure 1
Alberta Healthy Youth Relationships (AHYR) strategy overview.
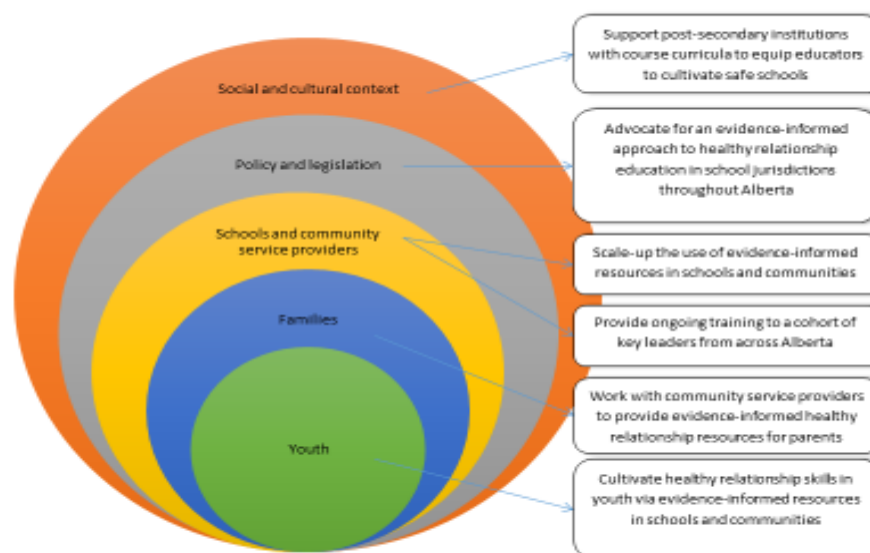
Figure 2
Advancing Healthy and Socially Just Schools and Communities course sequence.

faculty of social work at a Canadian university and directed by the third author. Shift was created to advance primary prevention (e.g., taking action to prevent problems before they occur) in the area of intimate partner violence. The purpose of Shift is to empower others to create the social conditions to stop violence before it starts. To this end, Shift conducts research that informs primary prevention practices, programs, policies and legislation. Shift also partners with researchers, academics, policy-makers, community-leaders, non-governmental organizations, community-based organizations, and collectives to implement and evaluate effective primary prevention solutions (Shift: The Project to End Domestic Violence, 2016).

In 2012, Shift initiated a project called the Alberta Healthy Youth Relationships strategy (AHYR). The

AHYR focuses on the primary prevention of intimate partner violence through reducing dating violence and promoting healthy relationships with youth (Exner-Cortens, Wells, Lee & Spiric, 2018). The AHYR draws on both ecological systems theory (Bronfenbrenner, 1977) and Cohen and Swift's (1999) spectrum of prevention by identifying key levers within ecological systems that need to be targeted to help youth achieve healthy relationships. At the social and cultural context level (Figure 1), Shift felt a key lever was targeting post-secondary curricula to empower educators and other professionals that work with youth, families, and systems to cultivate safe and socially just schools and communities. The AHSJSC program was thus designed to target this aspect of the larger initiative.

Description of Advancing Healthy and Socially Just Schools and Communities

AHSJSC is a four-course, year-long program. Graduate students successfully completing the AHSJSC program earn a post-baccalaureate certificate. These students have the option of continuing their studies and applying the courses in AHSJSC toward a Master of Education. Given that it is a certificate program, AHSJSC was designed for working professionals, such as teachers, counselors, school administrators, coaches, nurses, social workers, and others working in the human services sector. Potential students in AHSJSC also include those who are not yet working with youth, but who are interested in learning the theory and practice that underpin the development, promotion and building of healthy youth relationships in an anti-oppression and equity framework. To promote its interdisciplinary nature, professors teaching AHSJSC include those from the disciplines of social work, education, and nursing. Delivery of AHSJSC is blended and includes one week of on-campus, in-person classes followed by several weeks of online learning in Course 1 (Figure 2). Courses 2, 3, and 4 (Figure 2) are delivered exclusively online. See Figure 2 for the sequence of courses in the curriculum.

The topics for the four courses include promoting healthy relationships/preventing interpersonal violence (Course 1), recognizing and counteracting oppression and structural violence (Course 2), addressing trauma and building resilience (Course 3), and fostering student advocacy and community in the context of social justice (Course 4).

In the first course, Promoting Healthy Relationships, graduate students are invited to explore the promotion of healthy relationships in the context of evidence-based policies and practices that promote mental wellness. Strategies for building capacity related to cognitive, social, and emotional competencies that help to reduce bullying and other forms of violence among youth are explored. Students also engage in learning experiences to examine the theoretical roots of violence with the goal of increasing graduate students' abilities to facilitate the development of social-emotional learning for youth in the school and community settings in which they live and work.

The second course, Anti-Oppression Education, involves the examination of systems of oppression (including but not limited to racism, sexism, classism, ableism, heterosexism, and transphobia). The overall learning outcome of this course is for graduate students to develop strategies for recognizing and preventing oppression in all its manifestations. The readings, resources, and learning activities in this course are designed to facilitate graduate students' learning in the areas of recognizing the influence of power, control, and privilege, as well as creating safe learning environments.

Developing Resilient Youth, the next course in the sequence, focuses on challenging graduate students to understand the impact of trauma on healthy youth development. Graduate students in this course learn about recognizing the impact of toxic stress resulting from abuse, exposure to family violence, mental health, and addiction issues. In addition, graduate students are invited to consider effective supports for responding to family and community violence and other forms of trauma. School-based mental health strategies and approaches are also examined.

The final course, Student Advocacy and Community, invites graduate students to cultivate social justice through student advocacy by analyzing issues impacting students and communities from a critical pedagogical perspective. In this course, students are invited to consider diversity and inclusion, activism and advocacy, media literacy, social networking, and safe peer relationships. Graduate students explore these topics in the context of honoring student engagement and promoting student leadership in advocacy efforts. The importance of facilitating student participation in advocacy efforts as an essential component of promoting healthy and socially just schools and communities is emphasized.

It is important to consider not only the course topics and content, but also the process and pedagogy that were foundational in planning and implementing AHSJSC. Consideration of principles of adult learning influenced our processes in both the "bricks and mortar" and online classrooms. For example, instructors of AHSJSC consistently encourage the graduate students, who are working in a range of disciplines and unique settings with youth, to draw upon and share their lived experiences within the learning environment. There was also an acknowledgment by the team developing AHSJSC that learning is relational, circuitous, emotional, and often can be deeply personal and transformational (Groen & Kawalilak, 2014). A critical theoretical perspective is embraced in all courses, including co-creating knowledge through dialogue (e.g., in-person in the classroom and online in the discussion forums) and critical consciousness for social change (Groen & Kawalilak, 2014; Sensoy & DiAngelo, 2012). The learning activities, readings, and assignments are also designed to foster critical reflection and facilitate dialectal discussion in an atmosphere of transformative learning (Brookfield & Holst, 2011; Mezirow, 2009).

The initial week of on-campus, in-person learning in the first course, Promoting Healthy Relationships, provides the opportunity for students to get to know one another while engaging in experiential learning activities individually and in groups. The learning activities in

class during the first week of this course capitalize on identification of, and reflection on, students' values, beliefs, and attitudes to facilitate an understanding of healthy relationship development in the broader context of violence prevention. These in-person experiential learning activities help establish an environment of trust and rapport among the students in the physical classroom which serves as a foundation for future learning in the virtual online classrooms in the subsequent courses. With this foundation established, the cohort of students' progress through the subsequent three courses in an online learning environment. Principles of adult learning and a critical theoretical perspective are carried through to the virtual learning space. The course curriculum includes individual and group learning activities and readings designed to access the affective domain, foster critical reflection, and draw on the life/work experience of students as adult learners.

In addition, instructors mindfully engage in instructional immediacy online by using behaviors to show emotional attachment between instructors and students (Melrose, Park, & Perry, 2013). For example, instructors demonstrate instructional immediacy by simply addressing students by name in individual emails and in forum group discussions. Other instructional immediacy strategies used in the online portion of the courses include providing timely, individual, substantive feedback on assignments and posing reflective questions (Melrose et al., 2013). Instructors also share personal and professional examples when appropriate and engage in gentle use of humor with students.

In summary, graduate students in AHSJSC are exposed to an interdisciplinary approach to professional education that incorporates evidence-based research from violence prevention to youth development, as well as critical pedagogy approaches toward holistic responses to trauma, oppression, and violence. The potentially sensitive topics of this curriculum are addressed in a safe and caring learning environment where graduate students are called to examine their own values, beliefs, and assumptions and, at times, those of their student colleagues. To build the foundation for this safe and caring environment, this program was planned over the span of several years, and the faculty involved in this planning mirrored the interdisciplinary nature of this program as their backgrounds included social work, education, and nursing.

Alongside the design of the overall program, the team that developed AHSJSC also focused from the start on an evaluation strategy in order to assess the feasibility and utility of the program in its current format, as well as to guide the revision process in subsequent offerings of the program. We now describe the findings from this pilot evaluation work, conducted as part of the first offering of the program (July 2015-June 2016).

Pilot Evaluation of Advancing Healthy and Socially Just Schools and Communities

Research Questions

The primary questions for this pilot study were:

1. Does the provision of the identified course content related to violence and the primary prevention of violence contribute to participants having a better understanding of the roots of violence in society and how these factors influence youth behavior, learning, and the learning environment?
2. Does the provision of the identified course content and engaging students in skill building exercises designed to respond to violence and bullying in the school context result in participants understanding their roles in reporting, preventing, and responding to violence and its impacts?
3. Does the provision of information regarding the scope and nature of family, school, and community violence and supports available to youth and families result in participants having a better understanding and knowledge of the resources and community supports available to them when they have to respond to violence and bullying in the school context?

Participants

All individuals participating in the initial course offering were invited to participate in the pilot evaluation of the AHSJSC. On the first day of the first course in July 2015, the second author presented on this pilot study and invited any interested individuals to participate. Course instructors were not in the room during recruitment, and the second author did not have an existing relationship with any of the students. In order to minimize any coercion to participate, consent forms for the project were stapled to the baseline survey, and students were instructed to complete the survey whether or not consent to use the data for research purposes was given; in this way, individuals in the room would not know who had consented to participate in the research and who had not (if students did not give consent, they were told their data would be used for internal program evaluation purposes only, as per the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (Secretariat on Responsible Conduct of Research, 2014). The consent rate was 100% (n=18), and thus data from all course participants are included. All 18 participants also completed the baseline survey assessment with a retention rate of 83% at the one-year follow-up assessment. This study was reviewed and approved by the university's Research Ethics Board.

Procedures

Pre- and post-test survey data were collected before and after each course over the first year of the implementation of AHSJSC. Questions on surveys were designed to measure changes in students' attitudes, beliefs, knowledge, skills, and confidence on items pertaining to the course content across the curriculum. A within-groups research design was used to evaluate each of the four courses, with pre-testing occurring prior to each course offering, and post-testing occurring at the conclusion of each of the four courses. The baseline assessment (T0, July 2015) was completed on paper, and all subsequent surveys were completed electronically using SurveyMonkey. As this study was situated as a pilot evaluation of a course, participants were not provided any incentives for participating.

Measures

Evaluation focused on both reaction to course content (e.g., learning, enthusiasm, organization, group interaction, individual rapport, and scope of content) and acquisition of course content (e.g., attitudes, beliefs, knowledge, confidence, and skills). Response to course content was assessed on all post-tests (T1 – August 2015; T2 – December 2015; T3 – April 2016; T4 – July 2016). Acquisition of course content was assessed using the 18-item moral disengagement questions from the Western University Safe Schools (WU-SS) survey (Jaffe & Crooks, n.d., α=.81) and the Knowledge, Confidence, and Skills Healthy Relationships Questionnaire (KCS-HR) (Promoting Relationships & Preventing Violence Network, 2012). Items from the WU-SS tap violence prevention attitudes that indicate moral disengagement (e.g., "attitudes that can pose barriers for teachers in responding appropriately to situations of violence"; Crooks, Jaffe, & Rodriguez, 2016, p. 6). Example items from this scale include "If adults intervene in every incident of bullying, kids will never get the chance to practice conflict resolution on their own," "The word 'gay' is used inappropriately by youth so often that there is no point in intervening," and, "Because my main responsibility as a teacher is to teach numeracy and literacy, there is little time to teach violence prevention." This scale was developed to explore the impact of a safe schools course in a sample of Ontario pre-service educators (Crooks et al., 2016), where construct validity evidence supported a one-factor solution. The KCS-HR was developed by the Promoting Relationships and Eliminating Violence Network (PREVNet), a Canadian national center of excellence, as an evaluation tool for their Healthy Relationships Training Module. Items from this tool have been used previously to evaluate changes to healthy relationships knowledge, confidence and skills following training in healthy relationships content (Phipps, Cummings, Pepler, Craig, & Cardinal, 2016). Full versions of the WU-SS and the KCS-HR were administered at T0 and T4. For the other surveys (T1, T2, T3) course instructors were asked to choose the five questions that were most relevant to their course content, and only those questions were asked (e.g., for a total of 10 questions per survey – five questions from the outgoing instructor, and five questions from the incoming instructor). For simplicity, results presented in this paper focus on changes from T0 to T4 (e.g., across the program year).

Findings

In the initial year-long offering of AHSJSC, most students came from the field of education (94%), with 83% of these students currently working as teachers. One student came from the field of social work, and two students were registered nurses. Respondents ranged in age from 23 to 58 years (mean age = 33.5 years) with most respondents identifying as female (78%) and White (78%). The majority of respondents (67%) had worked with children for 10 years or less, and approximately one-third of respondents had personal experience with violence when they were growing up. Also, one-quarter had previously attended a violence prevention program.

Students reacted positively to teaching and learning methods used throughout the AHSJSC program. Across the courses, the average instructor rating was 4.7 out of 5, and the average course rating was 4.8 out of 5. In addition to overall scores, data were collected on the following specific domains: learning (e.g., "I have learned something which I consider valuable"), enthusiasm (e.g., "Instructor was dynamic and energetic in conducting the course"), organization (e.g., "Course materials were well prepared and carefully explained"), group interaction (e.g., "Students were invited to share their ideas and knowledge"), individual rapport (e.g., "Instructor had a genuine individual interest in students"), and breadth (e.g., "Instructor adequately discussed current developments in the field"). All domains had four items, with possible scores ranging from 5 to 20. As shown in Figure 3, instructors were rated very highly on all domains.

As part of the teaching and learning assessment, participants also rated the quality of assignments (2 items; score range: 5-10; e.g., "Required readings/texts were valuable"); the average score on these items was 4.5 out of 5. Overall, the quantitative data related to teaching and learning demonstrated the effectiveness of instruction throughout the program. (Teaching and learning data summarized here include three of the four courses. There was an unanticipated issue with

Figure 3
Scores for domains of learning.
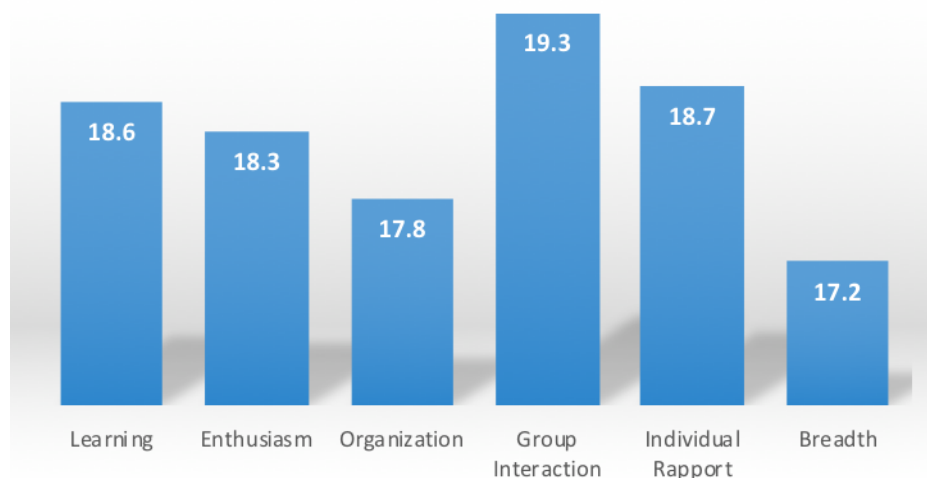
instruction in one course; this issue was addressed as part of the continuous quality improvement processes in response to evaluation data. Instructor scores in this course were extreme outliers, and as such, they were removed from the data presented here. Full data are available from the second author).

In addition to quantitative data, all surveys except the baseline contained a final, open-ended question to which students could respond and share any other thoughts or feedback on the course they had just completed. These qualitative data were reviewed thematically by the second author as part of the pilot evaluation, and they further reflected the effectiveness of teaching and learning in the AHSJSC. One participant remarked, "Great class! I thoroughly enjoyed the entire thing and I felt that I learned more in this one class than all of the Education classes as part of my undergraduate degree." Another shared, "The content was relevant, useful and meaningful. It should be mandatory for undergrads." Regarding both breadth and learning, one participant stated the following:

This course provided me with insight and growth not only for my professional life but also my personal life. Since the course, I have begun to see social topics differently, and have noticed things that I did not notice before. I hope to take what I learned from this course and pass it on to my students at school, and eventually to children of my own.

Regarding enthusiasm, individual rapport, organization and group interaction, another reported thusly:

[The professor] was truly an excellent prof – s/he did everything in [their] power to get the class chatting during synchronous sessions. S/He was warm, funny and willing to answer questions and tell stories about [their] experiences in the field. I also appreciated his/her style with allowing us free rein in choosing a research topic, [and] in encouraging us to use it towards our future projects or research.

Feedback overall was very positive, but some constructive feedback was also offered by students regarding potential course improvements. Constructive feedback from students across the courses primarily focused on strengthening grading rubrics. For example, one student stated, "I felt the expectations for learning task B were unclear…The rubric did not match instruction; overall, the rubric for this learning task needs to be re-evaluated," and another said, "[R]ubrics were included in the course outline; however, they were not marked and returned to students with assignments." One student also suggested reducing the amount of readings in the first course, given that the in-person portion is only one week in length, and two suggested reducing the volume of weekly discussion board postings in another course to increase quality. Several students also noted that the last course in the AHSJSC course sequence felt compressed, which was a result of the university timetable (spring semester courses are 7 weeks, compared to 12 weeks in the fall and winter semesters). This feedback, particularly around rubric improvements, was shared with faculty as part of a continuous quality improvement process.

We feel that the high scores for teaching and learning support preliminary changes in key outcomes across the course of the year. Particularly, in the one-year time period from T0 to T4, respondents demonstrated a significant decrease in moral disengagement attitudes. In addition to changes in moral disengagement, participants also showed preliminary improvements in their confidence to promote healthy relationships with youth (e.g., "I am confident I will coach or scaffold in the moment when the opportunity presents itself"). We did not find meaningful change in knowledge or skills, but this is likely due to the small sample size and fairly high level of pre-existing knowledge and skills of the participants in this sample.

Discussion

In this pilot evaluation, we evaluated a four-course graduate certificate program aimed at providing graduate students across the disciplines of education, social work, and nursing with the knowledge and skills necessary to promote healthy youth relationships, recognize oppression, understand trauma/resilience, and facilitate advocacy/community in the overall context of the prevention of intimate partner violence. In response to the first research question, graduate students gained a better understanding of the roots of violence and how these roots influence youth behavior and the learning and community environment. Prior work has demonstrated that teachers and adults working with youth benefit from training in the area of healthy relationship development (Blain-Arcaro, Smith, Cunningham, Vaillancourt, & Rimas, 2012; Pepler et al, 2012), and our pilot evaluation data extend this literature by demonstrating improvements over the span of a year related to attitudes and beliefs around the ability of educators to intervene on the root causes of bullying and violence. In particular, the moral disengagement finding in our sample highlights the increased understanding among program participants of the effectiveness of adult interventions to counteract bullying and violence both with youth and with the systems and contexts in which they live, suggesting the potential utility of this certificate program in achieving target outcomes. This finding also aligns with past work exploring factors predicting or impeding teacher responses to behaviors that detract from promoting a positive school climate. In a sample of over 400 pre-service teachers enrolled in a safe schools course, Crooks et al. (2016) also found a significant decline in moral disengagement from pre-test to post-test, and they noted that the decline in moral disengagement predicted an increase in bullying knowledge. While we did not find increases in knowledge in our sample, this may be due to the different experience levels between

our samples (in-service, graduate-level teachers) and the Crooks et al. (2016) sample (pre-service, undergraduate students) and the subsequent need for more sensitive measures of knowledge change in our more experienced sample.

The second research question centered on skill building in response to violence vis-à-vis reporting, preventing, and responding to violence and its impacts. Although we did not find significant changes in this area, the small sample size in combination with the high level of pre-existing knowledge and skills in this sample may have influenced this outcome; this is an important area for future study of this program as it pertains to utility. It is also worth noting that although two-thirds of the sample had between 1 to 10 years of experience working with children and youth, one third of the sample had over 10 years of this experience. However, the tool we used (Knowledge, Confidence, and Skills Healthy Relationships Questionnaire) is typically administered to general population samples and thus may not have been sensitive to change in this population.

The third research question explored whether graduate students gained a better understanding of resources and community supports. We feel the qualitative teaching and learning data provide preliminary support for this question. In addition, we note that we observed increased confidence to use coaching or scaffolding in order to promote healthy relationships. We view this finding as related to this research question, as it demonstrates participants' understanding of their ability to serve as a resource in the moment. This finding lends support to studies linking teachers' knowledge, self-efficacy, and confidence in recognizing and effectively responding to school violence (Blain-Arcaro et al, 2012; Crooks et al, 2016). We also believe this change, while preliminary due to the small sample size and pilot nature of data collection, is important to acknowledge as it demonstrates self-awareness, self-regulation, and attention to use of personal power in particular when working with those in a less powerful position, such as youth. Modeling awareness of the use of personal power as a resource was also deliberately and mindfully modeled by faculty teaching in this program as part of our critical pedagogical approach.

While promotion of healthy youth relationships and prevention of violence was the overall goal of AHSJSC, Whitley, Smith, and Vaillancourt (2013) called for professional learning opportunities for educators in the area of mental health literacy with an eye to the prevention of bullying as it is a root cause of many mental health issues in children. Furthermore, Furman (2012) proposed a social justice leadership framework, rooted in practice, to develop the knowledge and skills of social justice leaders such as students, teachers, and administrators with a goal of

transformative action in schools. The pilot evaluation of AHSJSC adds to this body of literature by extending beyond suggestions of professional development or learning opportunities for teachers to a scaffolded, graduate program of one year in length for students working in a variety of human service professions across school and community settings aimed toward violence prevention and healthy relationship development for youth.

Overall, pilot evaluation data indicate that AHSJSC can play an important role in building capacity among adults who work with youth, as well as that the certificate program is a feasible and useful way to offer adult education focused on creating socially just schools and community environments. Specifically, over the span of a year, graduate students in the program were better able to identify the roots of violence and how these factors influence youth, as evidenced through significant changes to attitudes and beliefs; understand their roles in responding to violence, as evidenced through significant changes to attitudes, beliefs and confidence; and understand resources and community supports, as evidenced through both qualitative and quantitative feedback. With these positive changes as context, the authors believe that a program such as AHSJSC could be implemented and replicated within other disciplines. Identification of the roots of violence, acknowledging the impact of violence on youth, and responding effectively to this violence are not the sole purview of educators, nurses, and social workers. Potential for change is multiplied as adults across disciplines who work with youth, work in the systems connected with youth, and develop policy/laws affecting youth become broadly educated and acutely aware of the depth and breadth of this issue.

Limitations

This pilot evaluation makes an initial contribution to the body of literature on the role of graduate education in promoting violence prevention and healthy relationship development; however, it is important to acknowledge three limitations of this work. First, regarding the collection of quantitative survey data, the sample was small (n = 18). Second, the Knowledge, Confidence, and Skills Healthy Relationships Questionnaire is more commonly used with the general population. In future studies, other measures which may be more sensitive to change should be explored. Third, the evaluation of AHSJSC occurred in the initial offering of this four course program; the data in this study represents an initial data set. Multiple evaluations over time with subsequent cohorts of students are needed to build on these data. Data from future cohorts of graduate students will also hopefully increase the diversity of the sample (e.g., respondents identifying

from a wider range of racial identities, increased number of male-identified respondents).

Implications for Practice and Research

The process of implementing a four course graduate certificate program designed to create systems-level change to prevent intimate partner violence in an interdisciplinary context was no small undertaking. One significant challenge included the planning phase, which took place over the course of several years as the AHSJSC team members grappled with decisions regarding pedagogy as well as course and program outcomes. To this end, even though the team was comprised of experienced post-secondary educators, they engaged in ongoing learning opportunities together at professional development seminars offered by the university in areas such as writing a teaching philosophy, developing learning outcomes, designing rubrics to enrich student learning, and creating an effective course outline. Another challenge was that administrative processes between faculties were complex at times; these processes needed to be navigated with open discussion and compromise.

Results from our pilot point to the feasibility of the initial offering of this interdisciplinary program, as well as to the utility of using a primary prevention perspective focusing on building and promoting healthy youth relationships within an ecological approach as a strategy toward building capacity for healthy relationships in adulthood. As such, this pilot study has several implications that might be considered related to practice and research. First, collecting evaluation data as part of the piloting of new curricular offerings is an important part of the scholarship of teaching and learning. In addition to helping us understand feasibility and utility, we have subsequently used the evaluation data to inform the process of curriculum revision in preparation for the subsequent cohort of students enrolled in AHSJSC. While the data from student surveys is invaluable, it is equally important to consider informal data such as anecdotal feedback from students in class and via email, as well as personal observations (e.g., what learning activities seemed engaging or not, what assignments seemed to meet the learning needs of students or not, etc.) when making revisions. In the same vein, it is important to integrate recent and relevant research literature both directly (e.g., violence prevention, healthy relationship development) and peripherally (e.g., policy initiatives, bullying, social-emotional learning, brain development) related to topics in the program. The implications related to the process aspect of teaching the potentially sensitive and value-laden topics in AHSJSC warrant careful consideration regarding selection of faculty who are both qualified for, and interested in, facilitating this type of learning

with graduate students across disciplines. This type of teaching requires faculty to acknowledge the expertise of students in their respective disciplines, including the tacit knowledge they bring to class, as well as their practice expertise as teachers, social workers, and nurses across a variety of school, community, and workplace settings. In some respects, the collaborative process of developing the curriculum, launching, evaluating, reflecting, and continuously improving AHSJSC mirrors what faculty were striving toward in their courses with the graduate students.

Conclusion

The majority of the graduate students found that the courses in AHSJSC were intellectually challenging and invaluable to their learning related to promoting healthy relationships, recognizing oppression, understanding trauma and resilience, and cultivating social justice. The findings of this pilot study suggest that such an approach is feasible and useful in a higher learning environment. As cohorts of graduate students that work with youth - teachers, social workers, and nurses – successfully complete this program, we hope that the primary prevention of intimate partner violence will come closer to being realized.

Compliance with Ethical Standards

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Instructor Disclosures of Communication Apprehension and Student Perceptions of Instructor Credibility in the Public Speaking Classroom

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The purpose of this study was to examine whether instructor disclosures of personal communication apprehension in the public speaking classroom are beneficial to students as they manage their own nervousness related to public speaking. Participants (N = 233) in the present study included students enrolled in public speaking courses at a medium-sized Midwestern university. Results indicated that participants rated instructors who disclosed personal experiences of communication apprehension to their classes as more competent than instructors who did not disclose this information. In addition, participants' open-ended responses suggested that students perceive supportive instructors who share their personal experiences of communication apprehension with their students to be an important resource to students as they work on overcoming their fears related to public speaking. The implications of these findings in the public speaking classroom, other higher education classrooms, and in relation to general instructor disclosures are discussed.

According to the Association of American Colleges and Universities (2015), oral communication skills remain one of the most highly desired learning outcomes for all college students. To achieve this learning outcome, college students may be required to complete public speaking courses or deliver presentations in courses offered by diverse disciplines (e.g., psychology, business). Researchers studying human fears have found that college students fear speaking in public settings more than death (Dwyer & Davidson, 2012). Thus, students commonly experience communication apprehension related to public speaking in any course that requires presentations. Logically, college students are not alone in their fear of speaking in public, and even college instructors, who speak in public regularly as part of their job, may have struggled with communication apprehension when speaking in public. Although student experiences of public speaking anxiety are well-known (Bodie, 2010), less is known about whether college instructors disclosing their own struggles related to public speaking, past or present, can help students to feel more at ease with the understanding that they are not alone in their communication apprehension and have the ability to overcome this fear.

Researchers have examined teaching strategies designed to help students manage their communication apprehension related to the public speaking (e.g., Beatty & Friedland, 1990; Bodie, 2010; Dwyer, 2000; Finn, Sawyer, & Schrodt, 2009). These teaching strategies include instructors sharing personal examples to help clarify course concepts. As such, instructors who assign presentations may find their students can benefit from instructor self-disclosures of struggle related to public speaking. The present study investigates students' perceptions of instructor disclosures of communication apprehension regarding public speaking and whether students perceive such

disclosures to be helpful when working to overcome their own fears of speaking in public.

Instructor Credibility

Student perceptions of instructor credibility have broadly been examined by researchers (e.g., Brann, Edwards, & Myers, 2005; Myers, 2001; Schrodt & Turman, 2005; Semlak & Pearson, 2008). Myers (2001) asserted that instructor credibility is one of the most important variables influencing the student-instructor relationship. That is, if a student does not perceive that the instructor is credible, it is unlikely that the pair will develop a meaningful relationship, which could inhibit the student's ability to learn. Credibility is defined as "the attitude toward a source of communication held at a given time by the communicator" (McCroskey & Young, 1981, p. 24). McCroskey and Young's (1981) definition of credibility is multidimensional in that the attitude held toward the source of the communication (e.g., the instructor) is composed of multiple dimensions. That is, when determining whether any source is credible the receiver will evaluate multiple aspects of the source of the information.

McCroskey and associates have forwarded five dimensions of credibility: (a) competence, (b) character, (c) composure, (d) sociability, and (e) extroversion (Beatty, 1994; McCroskey & Young, 1981). Although all five dimensions of credibility have been examined in extant literature, researchers commonly focus on the competence and character dimensions when examining instructor credibility (Beatty, 1994). Specifically, instructor competence and character are critical components students use when considering the overall credibility of their instructors (Beatty, 1994). Instructor competence refers to perceptions of the instructor's knowledge and expertise (McCroskey, 1998). Instructor

character refers to an instructor's trustworthiness or honest nature (Frymier & Thompson, 1992).

Researchers have examined the relationship between instructor credibility and a variety of variables, such as instructor style of dress (Lightstone, Francis, & Kocum, 2011), use of instructional technologies (Schrodt & Turman, 2005), and instructor age (Semlak & Pearson, 2008). Several studies have examined the relationships between student evaluations of instructor credibility and gender (both student gender and instructor gender). Research has indicated female instructors are often evaluated differently, and often less positively, when compared to their male peers (Basow & Howe, 1987; Basow & Silberg, 1987). In addition, Basow and Silberg (1987) reported that male and female students rated female instructors lower in course organization and teaching ability when compared to their male peers. As such, understanding student perceptions of instructor characteristics and behaviors that may influence student perceptions of credibility, such as self-disclosure of struggle, has important implications for both teaching strategies and instruction evaluation.

Student Perceptions of Instructor Disclosures

In recent years, researchers have investigated the relationship between instructor disclosures and student perceptions of instructor credibility (e.g., Imlawi, Gregg,& Karimi, 2015; Klebig, Goldonowicz, Mendes, Miller, & Katt, 2016; Miller, Katt, Brown, & Sivo, 2014). An instructor often has to balance the need of self-disclosure and privacy in the classroom when sharing private information with students (Cayanus & Martin, 2004, 2008; Cayanus, Martin, & Goodboy, 2009; Kaufmann & Frisby, 2017). Whereas sharing personal examples may lead to a more immediate classroom environment and a better learning experience for students (Gorham, 1988; Kaufmann & Frisby, 2017), students may view instructors who reveal too much information as exhibiting inappropriate behaviors. Petronio (2002) confirms this notion, posits that there are benefits and drawbacks regarding disclosure, and offers the understanding that the decision of managing private information is centered on a rule-based system that differs for each individual depending on their own specific privacy-related criteria. Furthermore, Petronio (2002) states that the "balance of privacy and disclosure has meaning because it is vital to the way we manage our relationships" (p. 2). The revelation of private information, or any information that may make an individual feel vulnerable, is a risky proposition for not only those that offer the disclosure of the private information, but also for those that hear the private information and their relationship overall (Petronio, 1991). This dynamic may be especially prevalent in the academic environment and the relationship between an instructor and their students.

When considering the benefits of disclosure, research has found that instructors who use self-disclosure and personal narratives at a higher rate to clarify course content are rated more highly when compared to their counterparts who do not use self-disclosure or personal narratives as often (Downs, Javidi, & Nussbaum, 1988). Conversely, some disclosures may lead to a "negative impression that diminishes the other person's respect and a basically satisfactory relational status quo" (Rosenfeld, 2000, p. 8). Sidelinger, Nyeste, Madlock, Pollak, and Wilkinson (2015) found that students have lower communication satisfaction with their instructors when instructors offer too many disclosures or have conversations that the students deem as inappropriate. Miller et al. (2014) found that negative self-disclosures (e.g., instructor sharing information about personal failures and character weaknesses) or self-disclosures of struggle can contribute to classroom incivility. However, Kaufmann and Frisby (2017) have found that students do not perceive a high frequency of instructor disclosures negatively if the content of the disclosures are relevant to the course. Thus, the content of the disclosures may be viewed positively by students if they view such disclosures related directly to the course material.

Determining when to reveal or conceal private information may become a dilemma for instructors when considering a disclosure with students. Instructors may feel that there is a balancing act between the proper amount of disclosure and revealing too much. McBride and Wahl (2005) found that instructors may feel the need to reveal some private information to create a comfortable learning environment while avoiding disclosures that may not be suitable for the classroom setting. Any disclosure that may impact the relationship between the instructor and the student may have significant consequences for the learning experience of the student or the perceived effectiveness of the instructor (Frymier, 1994; Nussbaum & Scott, 1980).

Pensoneau-Conway (2009) offers that navigating interpersonal boundaries could be a difficult process for instructors as they may struggle with finding the perfect ratio of privacy and disclosure, which may be different for each class depending on the makeup of the students in that course. That is, instructors continuously must decide what they can disclose and with whom based upon the specific needs of each individual class. While there have been many studies that have examined instructor characteristics and their relationship to student perceptions of instructor credibility, no known studies have examined the impact of instructor disclosures of communication apprehension on student perceptions of instructor credibility.

Communication Apprehension

Communication apprehension (CA) is understood as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons" (McCroskey, 1977, p. 78). Although CA can be conceptualized as a relatively enduring trait, much of the research on CA has focused on context-based (or state-based) CA (Spielberger, 1966). Students' CA with public speaking in the college classroom is considered context-based. Thus, the requirement of students to speak in front of the class can, for most students, create CA directly related to the experience of public speaking.

Scholars have developed a vast amount of literature to aid instructors in helping students to overcome their nervousness or anxiety related to classroom speeches (e.g., Ahlfeldt & Sellnow, 2009; Bodie, 2010; Duff, Levine, Beatty, Woolbright, & Sun Park, 2007). Bodie (2010) states that the most popular techniques developed by researchers and public speaking instructors in the treatment of public speaking anxiety include: (a) systematic desensitization (altering the individual's negative association with public speaking and anxiety), (b) cognitive modification (replacing negative appraisals of public speaking with positive views), and (c) skills training (teaching specific techniques, such as selecting the correct organizational structure for a speech and ways to enhance verbal and nonverbal delivery). The use of treatment options for public speaking anxiety in the classroom has varied results that can often be dependent on various classroom constraints (Bodie, 2010). Thus, there are teaching techniques available for instructors to help students manage their public speaking anxiety, but these techniques often vary based on a variety of environmental factors.

Research Questions

To date, no known research has investigated whether instructor disclosures of their own personal CA in public speaking contexts – self-disclosures of struggle – are beneficial to students. Due to the importance of establishing instructor credibility to ensure a positive classroom environment, the following research question is posed to understand how students perceive instructor disclosures of CA related to public speaking:

RQ1: Do student perceptions of teacher credibility in public speaking classes differ between professors who choose to disclose their communication apprehension to students and professors who choose to not disclose their communication apprehension to students?

In addition, since previous research has identified that female and male instructors can be perceived differently, this study aims to understand student perceptions related to instructor disclosures of CA and instructor gender. To investigate these differences, the following research question is posed:

RQ2: Do student perceptions of teacher credibility differ between male and female professors who choose to disclose their communication apprehension?

Although some instructor disclosures can create a more immediate classroom environment, no known research has investigated whether instructor disclosures of public speaking CA help students feel more comfortable disclosing their own CA-related to public speaking with their instructors. Thus, the present study provides additional insight into whether students perceive instructor disclosures of CA to be useful by posing the following research question:

RQ3: What considerations inform a student's decision to disclose their communication apprehension to the professor?

Methods

Participants

Participants in the present study included 233 students enrolled in public speaking courses at a medium-sized Midwestern university. The ages of participants ranged from 18 to 39 years ($M = 19.51$, $SD = 2.81$). Seventy-four participants self-identified as male, 152 participants self-identified as female, and seven participants did not indicate their gender or identified as non-binary. One hundred seventy participants were first-year students, 42 were sophomores, 14 were juniors, four were seniors, and three did not report their class standing.

Procedures and Instrumentation

Data were collected from multiple sections of a public speaking course. A public speaking course was selected for data collection purposes because all students are required to regularly present speeches for this course. This public speaking course uses a standardized syllabus and customized textbook. Students completed the survey after having been exposed to the concept of CA through course lectures, activities, and assignments.

Four vignettes were created for the present study. The vignettes consisted of short, hypothetical stories that described a public speaking professor's

behaviors. Vignettes are descriptive texts that are designed to present a hypothetical situation to readers, generally with some small differences written into different versions of the texts. Vignette methodology is used as a quasi-experimental design that randomly assigns participants to read one version of the story and then respond to questions based on the descriptive text to which they were assigned (Alexander & Becker, 1978).

In the present study, the vignettes were designed to describe the professor as exhibiting behaviors that sometimes indicate CA when speaking in the class. The vignettes were developed using McCroskey and associates' descriptions of external behaviors that indicate one is experiencing CA. Specifically, the vignettes used the terms "tense," "voice quivers," and "nervousness" to describe the hypothetical instructor's behaviors (see Appendix). Each version of the vignette used the same communication behaviors. One version of the vignette only described the instructor's behaviors (non-disclosure version), and one version of the vignette described the instructor's behaviors and also included the instructor disclosing to the class the personal experience of CA in public speaking contexts (disclosure version). The gender of the instructors was also different between the four versions of the vignettes (i.e., female non-disclosure, male non-disclosure, female disclosure, male disclosure).

After participants read the vignette, they completed McCroskey and Young's (1981) Teacher Credibility scale and McCroskey's (1970) Personal Report of Communication Apprehension (PRCA-24). The Teacher Credibility scale is a 15-item instrument that instructs respondents to indicate their evaluations of the instructor in the vignette. The instrument includes both sub-scales for teacher competence and teacher character. Prior research supports the reliability of the scale ranging from .84 to .93 (e.g., Beatty & Zahn, 1990; McCroskey & Young, 1981). The PRCA-24 is "the most popular and most valid measure of trait-like communication apprehension" (Beatty, 1994, p. 292). The scale is a 24-item Likert instrument designed to measure respondents' CA in public, small group, meeting, and interpersonal contexts (Beatty, 1994). The PRCA-24 has documented high reliability .93 to .95 (McCroskey, Beatty, Kearney, & Plax, 1985). In the present study, a reliability coefficient of 0.64 was obtained for Competence, 0.51 was obtained for Character on the Teacher Credibility Scale, and 0.73 was obtained for the PRCA-24.

Finally, participants responded to three open-ended questions designed to understand what instructor characteristics make them likely to disclose their CA to instructors, what considerations would inform their decision to disclose CA to a public speaking instructor,

and how they would perceive an instructor's personal disclosures of CA related to public speaking.

Open-ended Data Analysis

Three researchers initially read all of the open-ended responses. Using a constructivist grounded theory approach (Charmaz, 2014), the researchers independently engaged in line-by-line coding using a constant comparison approach (Charmaz, 2006). Once each coder reached theoretical saturation (i.e., no new codes emerging), they compared their codes and found that similar labels were used. In areas where the researchers coded a line of text differently, they discussed their differences until they reached a consensus. This process resulted in three key themes emerging related to RQ3. The results of this process are discussed in the results section.

Results

Participants' CA scores were categorized into having high, moderate, or low public communication CA categorizations (Richmond & McCroskey, 1989). In the present study, 132 students (56.7%) were categorized as having high CA, 84 students (36.1%) were categorized as having moderate CA, and 17 students (7.2%) were categorized as having low CA.

Primary Quantitative Results

The first research question examined whether student perceptions of teacher credibility differed between professors who chose to disclose their own CA to students when compared to professors with CA who chose to not disclose their CA in the classroom. Results from a one-way ANCOVA test, where participants' public communication apprehension scores were controlled for, revealed a significant difference between the disclosure and non-disclosure conditions for teacher competence, $F(3, 221) = 7.07$, $p = .000$. Participants in the disclosure conditions reported significantly higher levels of teacher competence (female disclosure: $M = 30.39$, $SD = 4.16$; male disclosure: $M = 30.57$, $SD = 4.80$) than participants in the non-disclosure conditions (female non-disclosure: $M = 27.11$, $SD = 3.89$; male non-disclosure: $M = 27.59$, $SD = 7.01$). Post-hoc tests revealed a significant difference between the female non-disclosure and the male ($p = .003$) and female ($p = .006$) disclosure conditions and between the male non-disclosure and the male ($p = .024$) and female ($p = .012$) disclosure conditions. However, the ANCOVA test indicated no significant interaction between participants' public communication apprehension and teacher competence. Further, controlling for participants' gender

Table 1
Descriptive Statistics for Teacher Competence and Character by Disclosure Condition

	Teacher competence			Teacher character		
	M	SD	n	M	SD	n
Female non-disclosure	27.11	3.89	55	23.91	1.93	56
Male non-disclosure	27.59	7.01	56	24.69	2.95	55
Female disclosure	30.39	4.16	57	24.36	3.12	58
Male disclosure	30.57	4.80	58	24.74	3.27	57

did not result in any significant interaction effects. Results from a one-way ANCOVA test did not indicate a significant difference between the disclosure and non-disclosure conditions for teacher character, $F(3, 221) = .966$, $p = .409$. Table 1 provides the cell means and standard deviations for each condition.

The second research question examined whether student perceptions of teacher credibility differ between male and female professors who choose to disclose their CA. The results of post-hoc tests revealed no significant difference between the female disclosure and male disclosure groups for teacher competence ($p = .949$) and teacher character ($p = .534$), although the male non-disclosure and disclosure groups had slightly higher mean scores than both female groups in both teacher competence and credibility (see Table 1).

Open-Ended Data Results

The third research question examined the considerations that inform a student's decision to disclose CA to their professor. Open-ended data were coded by three researchers, and three key themes emerged from the qualitative analysis. The three themes included: (a) professor immediacy and supportiveness inform students' decision to disclose CA; (b) students perceive a professor can provide assistance and resources when students disclose CA; and (c) students perceive professors who also experience CA related to public speaking to be more empathetic than professors who do not share their personal struggles.

Professor immediacy and supportiveness. Although some participants noted that they did not have CA or believed that they could overcome their CA "on their own" without the help of an instructor, the majority of participants expressed that there were certain positive communication behaviors a professor could display that would make a student more likely to disclose their CA. Participants reported (a) "understanding," (b) "approachable," (c) "knowledgeable," (d) "relatable," and (d) "trustworthy" as the common characteristics that would inform their decision to disclose their CA to a professor.

Participants repeatedly used the terms "caring," "open," "encouraging," "kind," "friendly,"

"nonjudgmental," and "honest" to describe professor communication characteristics they need to observe in order to feel comfortable disclosing their CA to their professor. For example, participant 63 said, "They have to seem like they care enough. Compassion is key, and also trust." Participant 138 stated, "I would feel comfortable discussing my fears of public speaking if my professor was friendly . . . and clearly cared about the students." Similarly, participant 223 said, "Characteristics about a professor [that] would allow me to feel comfortable would be understanding, trustworthy, caring."

The professor characteristics that students listed are common behaviors associated with instructor immediacy (Richmond, Gorham, & McCroskey, 1987), supportiveness, (Burleson & Samter, 1990), and goodwill (McCroskey & Teven, 1999). That is, professors can demonstrate verbal and nonverbal behaviors that create immediacy, such as smiling, asking about student perceptions and opinions, and making eye contact, to help create a close and comfortable environment in the classroom (Frymier & Houser, 2000). In addition, many of the communication behaviors that students listed (e.g., understanding, open, encouraging) are supportive behaviors that can be enacted by a professor to communicate that they care about the student's well-being (Burleson & Samter, 1990). Finally, communicating caring to students through self-disclosures can be a beneficial technique to help instructors achieve relational goals (Kaufmann & Frisby, 2017).

Participants' responses indicated that their decision to disclose CA is dependent on whether a professor exhibits immediacy and supportive behaviors. That is, when a student observes a professor enacting immediate and supportive behaviors they feel more comfortable in their choice to discuss the sensitive issue of their CA with the professor. Participants frequently reported that their decision to disclose that, "[It]depends on how comfortable I am with the teacher" (participant 97), and, "[I]t depends if the professor can be trusted" (participant 139). Thus, the open-ended responses suggest that a student's choice not to disclose their CA to the professor occurs when a professor is exhibiting characteristics that do not meet the student's expectations of instructor caring.

Provision of assistance and resources. Participants noted that disclosing their CA regarding public speaking to their professors would be beneficial because the professor can assist the student in overcoming their CA. Participants believed that their public speaking professors in particular can offer specific suggestions to help them to overcome their fear of public speaking. For example, participant 152 stated the instructor "may have some helpful insight I have never previously thought about." Participant 10 said, "The only way to grow is to discuss [my fears] and ask for help."

Participants also made it clear that if they perceived that a professor was willing to help them to overcome their fear of public speaking, they would be willing to disclose. Participant 83 said, "If they expressed empathy towards students with anxiety and were willing to work with me [I would disclose my fears]." Similarly, Participant 129 explained, "[T]hey could perhaps help you control your apprehension and give you some peace of mind." Thus, participants believed disclosing their CA to a professor who is willing to work with them would be beneficial because they would gain access to specific advice and resources that they would not otherwise have had access to. Participants' perceptions of an instructor's ability to provide assistance suggest that students view their instructors as a vital resource when working to overcome CA. However, participants' beliefs regarding their professor's willingness to help also indicate that a student may not be open to asking for assistance if they do not believe the instructor truly cares about helping them.

Shared experience of public speaking apprehension. The open-ended data overwhelming indicated that participants viewed professors who disclosed their own public speaking fears to be able to relate to the student's similar experience. Participants also believed that knowing their professor has faced similar struggles related to public speaking but has overcome them to be able to be a competent speaker, made them feel more comfortable in the classroom and less alone in their struggles. Specifically, participant 233 said that if a professor had disclosed fears related to public speaking anxiety, "the students [would] feel comfortable." Participant 108 said, "[When a professor discloses CA it] shows vulnerability and makes me feel better/more normal about myself and my struggles." In addition, participant 135 stated, "Knowing that the professor has had the same issues in the past and has overcome them and succeeded is more reassuring that I can and will improve and overcome my fears." Thus, the findings indicate that a professor's decision to disclose their own struggles with CA may help the students to feel closer to the professor because they share a common experience. Furthermore, participants' reports suggest that when they feel less alone in their fear of public speaking, then they are more confident that they will be able to become competent speakers in the future.

Students' perceptions of professors' CA disclosures indicate that instructors who choose to share their struggles with students may strengthen the instructor-student relationship. Prior research on instructor disclosures and credibility indicated that professors should be careful in their choices of disclosure in the classroom because negative disclosures, such as weaknesses, may be viewed less positively by students (e.g., Miller et al., 2014). Although struggling with CA could be viewed as a negative disclosure (i.e., having CA could be perceived to be a weakness), disclosing this information as a struggle that can be overcome seems to have a positive impact on the student-instructor relationship. That is, students feel less alone in their own fears of public speaking and may believe that their professor can empathize with them as they work on improving their public speaking skills.

Discussion

This study examined student perceptions of instructor disclosures of public speaking apprehension to understand whether these disclosures are a beneficial instructional tool and in strengthening the instructor-student relationship. Examining instructor disclosures and the subsequent impact on student perceptions of the instructor's disclosure in the classroom environment can offer practical insight into some of the factors that may help or hinder a student's ability to learn. The current study offers insight into several factors regarding instructor disclosures in this context regarding CA.

The first research question investigated whether student perceptions of teacher credibility in public speaking classes differed between professors who chose to disclose their own high CA to students when compared to professors with high CA who chose not to disclose their struggles in the classroom. Overall, students perceived an instructor's competence, but not character, to be higher based on their disclosure of CA in the context of the college classroom when compared against instructors who do not disclose their struggles with CA. Based on this evidence, it appears that instructors who have experienced CA and have openly disclosed those struggles with students are perceived as more competent because of the fact that instructors can relate to the students' own experiences and can readily offer advice for dealing with those struggles regarding CA. This offers further evidence for previous research that found instructors that use self-disclosure and personal narratives are rated more highly when compared to their counterparts that do not use self-disclosure or personal narratives (Downs et al., 1988).

Whereas some may consider the disclosure of CA negatively or as a weakness, based on the findings from this study, the context of the disclosure in the classroom environment was not found to be considered as a negative or inappropriate disclosure by the students. This may be the case in this context as some of the students may be currently experiencing CA themselves and can relate to the instructor's disclosure. The students may also feel that it is appropriate to discuss CA during a course designed to help foster public speaking skills. This finding is similar to other recent research that indicates that students perceive disclosures related to class content as helpful (Kaufmann & Frisby, 2017). In addition, the students' perceptions of the instructor's character did not change between the experimental conditions, which offers evidence that students may not necessarily see CA as a trait that applies to an individual's overall credibility. Beyond the public speaking classroom, these findings also suggest that any professor who assigns presentations to assess student learning may benefit from sharing their own experiences of CA (if relevant) to help students feel more comfortable speaking in the classroom.

The second research question examined whether student perceptions of teacher credibility differ between male and female professors who choose to disclose their CA. Overall, the results found that there was not a statistically significant difference between male and female instructors, but the male instructors did score higher in each experimental condition. These findings offer additional evidence that females are evaluated differently, and often less positively, when compared to their male peers (Basow & Howe, 1987; Basow & Silberg, 1987). Since credibility is one of the most important variables that may influence the student-instructor relationship (Myers, 2001), it is important to continue to examine issues related to gender and credibility to discover the root cause of these misconceptions.

Lastly, the third and final research question examined the considerations that inform a student's decision to disclose CA to their professor. Students reported that professor immediacy and supportiveness is often important for helping them to consider disclosing their own struggles with CA. Furthermore, findings uncovered that students who perceive an instructor to have experience with CA can be more empathetic and offer assistance and resources for dealing with their struggles. Based on these student perceptions, instructors who have experienced CA may be more prepared to help students with their own CA when compared to instructors who have never experienced CA. Instructors who have also experienced CA may be more immediate, more empathetic, and more supportive of students who are currently experiencing CA. In addition, instructors may

be perceived as more credible because they have overcome their own struggles with CA and can share their methods for overcoming their public speaking anxiety. Therefore, an instructor's disclosure that they have experienced CA and can relate to the student's struggles with CA may help to provide the perfect environment for helping students to overcome their struggles with speaking in public. These findings offer additional evidence to the previous research by McBride and Wahl (2005) and Gorham (1998), who found that instructors may feel the need to reveal some private information to create a comfortable and immediate learning environment that may lead to a better learning experience for students.

Limitations and Future Directions

As with any research, this study has limitations. While there were patterns and saturation found with the open-ended data, a larger sample size may be able to offer more insight into the patterns that were uncovered. In addition, this study examines public speaking instructors in public speaking courses. Future studies may consider other courses or environments to determine how the revelation of CA may influence the student-instructor or superior-subordinate relationship. Researchers should also further examine the impact instructor disclosures of CA have on students' CA (e.g., whether instructor disclosures of CA lower student reports of CA). The amount of information that instructors disclose in the classroom regarding CA may also need to be examined to determine if there are times when sharing too little or too much information becomes problematic. As mentioned previously, Sidelinger et al., (2015) found that students have lower communication satisfaction with their instructors when instructors offer too many disclosures. Beyond exploring CA, future research studies should investigate additional self-disclosures of struggle to further understand whether these types of disclosures of struggle related to course concepts and/or skills help make the learning process visible to students.

Implications

The current study offers multiple implications for college instructors in helping students to overcome their struggles with CA. First, instructors who have experienced CA should consider sharing that private information with students in an appropriate manner. For example, when assigning a presentation assignment and discussing expectations of students' speaking, instructors could share their own personal experiences of communication apprehension in public speaking contexts and the techniques that worked well for them personally in managing their public speaking anxiety.

Students may perceive their instructor as more credible to speak on the subject of CA after hearing these disclosures and may be more apt to seek assistance and share their own struggles of CA with the instructor.

Second, instructors should attempt to be supportive and empathic when discussing the concept of CA while encouraging students to seek additional assistance from the instructor if necessary. Instructors should discuss CA sensitively in front of the entire class. In addition, instructors can show a willingness to help students experiencing CA by informing all students that the instructor is an available resource. In sum, the present study offers practical implications for instructors who require students to complete public speaking in their classes to help their students to manage CA. The study findings suggest that instructor disclosures of CA are, overall, beneficial to students.

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Appendix

Vignette text:

Female non-disclosure condition: It is halfway through the semester, and you are taking a public speaking class with Professor Sara McConnell. You have noticed that Professor McConnell seems to always be tense when speaking in front of the class. When she holds papers you can see them shaking in her hands. She also seems very nervous when lecturing. Professor McConnell's voice quivers at times when lecturing, and at the end of the lecture she seems to be sweating a great deal.

Female disclosure condition: It is halfway through the semester, and you are taking a public speaking class with Professor Sara McConnell. You have noticed that Professor McConnell seems to always be tense when speaking in front of the class. When she holds papers you can see them shaking in her hands. She also seems very nervous when lecturing. Professor McConnell's voice quivers at times when lecturing, and at the end of the lecture she seems to be sweating a great deal. Close to the end of the semester, when lecturing about communication apprehension, Professor McConnell informs the class that she struggles with communication apprehension and, in particular, public speaking.

Teaching Personal Epistemology and Decision Making in a Global Leadership Course

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This article describes an interdisciplinary teaching experience between two faculty members in an MBA course on global leadership. Critical systems thinking theory informed course design and activities. Detailed pedagogy, course competency assessment, and personal reflections are included. Faculty used quantitative and qualitative measures to assess students' change in beliefs, attitudes, and competencies over the course. Data included written reflections from exercises, a quantitative pre-post measure of epistemological beliefs, and teaching reflections. Students reported gains in the importance of self-awareness, inter-cultural awareness, and complexity in decision making. Personal epistemology changes occurred, but less so. The course findings indicated that sense of self and one's beliefs will impact decision making and openness to new ideas and information. The capacity of students to assimilate new information is connected to their ability to relate the material to their personal lives, values, and world views. Faculty reflections led to insights in how to teach critical systems thinking for epistemological development and decision-making.

This article describes an interdisciplinary teaching experience between two faculty in an MBA course on global leadership. The course was designed to increase students' competencies in self-awareness, critical systems thinking, and epistemological development to enhance decision making. These are key competencies needed for global leadership but are often left out of courses on global leadership. Faculty disciplines were management/leadership and social work. Through an interdisciplinary teaching approach, we hoped to see students expand their use of systems thinking, self-awareness, and epistemological beliefs to inform decision making in the global business environment. The decision science literature indicates that a more interdisciplinary model based in epistemology for making decisions in complex global environments is needed for today's leaders. Prior research has determined that examining epistemological beliefs leads to higher levels of critical thinking, which is required for complex decision making.

In addition to developing the pedagogy, faculty used SOTL methods to examine personal epistemological beliefs and attitudes of students enrolled in the global leadership course. Faculty evaluated change in student's self-awareness, critical systems thinking, and decision making over the course. Data collection included written student work and observations from exercises, a quantitative pre-post measure of epistemological beliefs published by Anderson-Meger (2016), and evaluation exercises. Students (n= 16) were typically working adults employed in professional settings. Half the class included Chinese students who were attending the university for their MBA degrees. The course was face-to-face and met one night a week for four hours for eight weeks.

As part of the co-teaching experience, faculty explored their attitudes and perceptions. Faculty kept weekly process notes on how their presence may have influenced students. Increasing students' competencies in decision-making, self-awareness, and critical systems thinking required intentional reflection on faculty role and student responsibility. Working alongside students allowed faculty to examine both their attitudes and students' attitudes (Herr & Anderson, 2005). Faculty needed to function as motivator and coach throughout the educational process to influence change (Herr & Anderson, 2005). At the same time faculty needed to maintain high expectations and clear delineation of roles.

Literature Review

Thinking for Global Leadership

New models of global leadership acknowledge the importance of corporate stakeholders, shareholders, politics, employees, local communities, and the natural environment on the choices and decisions made by corporate leaders (Freeman & McVea, 2001; Donaldson & Preston, 1995). Accordingly, there has been a call for renewed focus on managerial decision-making, specifically considering the needs and expectations of diverse and multiple stakeholders beyond the shareholder and including the natural environment (Freeman & McVea, 2001; Kish-Gephart et al., 2010; Lawrence, 2015).

Concepts of critical thinking and systems thinking were stressed in the global leadership course. Systems thinking is defined in multiple ways, usually tied to specific disciplines. The authors adopted the following definition of systems thinking from Reynolds (2011):

Systems thinking in practice involves stepping back from messy situations of complexity, change and uncertainty, and clarifying key interrelationships and perspectives on the situation. It further requires engaging with multiple often contrasting perspectives amongst stakeholders involved with and affected by the situation so as to best direct responsible joined-up thinking with action to bring about morally justifiable improvements (p. 40).

The process requires the thinker to engage in making sense of relationships, apply concepts and deal with complex ethical dilemmas which involve multiple stakeholders and value systems. Teaching critical systems thinking required the instructors to design classroom activities to activate all aspects of critical systems thinking. Students were exposed to dialog, meaning making, and challenges with their way of thinking (Lawrence, 2015). The importance of listening to multiple perspectives was central to learning about themselves and others.   The initial reaction to different worldviews and complexity was confusion and uncertainty. Instructors used explicit instruction into the "why" of the teaching critical systems thinking and self-awareness to engage students (Hofer, 2006).

The evolution of systems thinking into critical systems thinking activates the affective and beliefs levels of the person's cognitive processes. In addition to considering the various components of the "hard" system, the thinker should examine his or her perceptions and beliefs regarding the system. Purpose and normative assumptions will affect the definition of the system and how it operates (Reynolds, 2011). When thinkers are faced with ambiguity, there is a natural tendency to revert to what is most comfortable. Teaching critical systems thinking requires a process where one is pushed outside of one's established thoughts and beliefs to examine issues and practice from new perspectives.

Checkland (as cited in Reynolds, 2011) identified a seven-stage process for helping the learner move from problems to action using critical systems thinking. In stage one, the problem is unstructured and amorphous. One knows there is a problem but has no way of defining it or placing boundaries around it. Stage two involves creating a rich conceptualization of the problem and the context around the problem: in other words, attempting to articulate exactly what is going on. Stage three asks the learner to identify the relevant systems around the main system: customers/clients, agents/actors, purpose of the system, worldview of the system, decision makers in the system, and the environmental impacts within and on the system (p. 45). Stage four involves modeling different outcomes for addressing the issues. Based on the models the learner moves into comparative analysis to identify how the models may actually perform to solve the problem. Stage six results from the comparative analysis of stage five. Critiques and debate will illuminate the feasibility of implementing models. Finally, in stage seven the chosen model or models are put into action. The process becomes circular as the outcomes are evaluated.

Issues of power, politics, ideologies, beliefs, and worldviews will impact each individual and group in the process. Rather than ignore these elements, the student is pushed to examine the difficult and often conflicting forces. The only way for individuals to make sense of change and how change happens is to use critical reflection on their own thinking processes (Lawrence, 2015). This involves explicit instruction on the nature of epistemology. Students were exposed to the concept of epistemological development early in the class and were continually asked to examine the values and beliefs in their perspectives throughout the course.

Epistemology and Epistemological Development

Many researchers have examined the role of knowledge, an antecedent to decision-making, in the context of responsible global leadership (Bird & Osland, 2004; Brake, 1997; Briscoe, 2015; Kets de Vries & Folorent-Treacy, 1999). Exploring underlying beliefs that make up knowledge and decision-making helps students understand the complexity involved in global leadership situations (Briscoe, 2015; Cox, Hill, & Pyakuryal, 2008; Polanyi, 1966). This knowledge (often referred to as tacit knowledge) is embedded in personal experience and beliefs (Nonaka, 1994; Senge, Smith, Kruschwitz, Laur, & Schley, 2008). Tacit knowledge influences the perceptions of what one considers appropriate values, attitudes, and behaviors (Senge et al., 2008).   According to Briscoe, our experiences and subsequent beliefs predispose us to pay attention to specific data, ascribe meaning, and derive conclusions (2015).

Personal epistemology is a term used to identify a person's beliefs regarding the complexity of learning and knowledge, processes of knowing, sources for knowledge, and justification of knowledge claims (Hofer & Sinatra, 2010; Marra & Palmer, 2008). Research has demonstrated a correlation between epistemological beliefs, critical thinking, and decision-making (Green & Azevedo, 2007; Lawrence, 2015; Marra & Palmer, 2008; McMillan, 2010; Pintrich, 2004; Zimmerman, 2008). The cognitive processes involved in critical systems thinking and decision-making are motivated by an individual's personal beliefs about knowledge: where knowledge comes from, what constitutes knowledge, and how one develops knowledge (Hofer, 2006).

Most models of epistemological beliefs have a common emphasis on constructivist, interactionist

approaches (Muis, 2007). From a developmental perspective, the person begins with an objective, dualistic viewpoint of the world, which is followed by a multiplistic stance nuanced by extreme subjectivity (Kuhn & Dean, 2004; Pintrich, 2002). In the final stages, the person can acknowledge multiple perspectives and integrate new knowledge with current knowledge to form complex ideas. A person's ideas of truth and knowing will become variable and multifaceted over time (Hofer & Sinatra, 2010).

Global leaders may frequently face values and beliefs that differ from their own. Persons with strong beliefs in the certainty of knowledge, extreme convictions, and disinclination towards cognitively challenging tasks are more likely to ignore information they read and develop biased conclusions towards their positions (Lawrence, 2015; Muis, 2007). Thinking can become linear rather than cyclical, leading to erroneous conclusions that do not address complexity (Briscoe, 2015). Exposing people to alternative evidence or information is not enough to alter their initial perspectives (Kuhn & Dean, 2004).

Kuhn identified various levels of epistemological understanding and then explained the assertions, reality, knowledge, and critical thinking components within those levels (Kuhn & Dean, 2004). According to Kuhn, students at the realist level believe that reality is directly knowable, and consequently, critical thinking becomes unnecessary. Absolutist level takes knowledge a step further and describes a dualistic belief system: knowledge is either right or wrong. Critical thinking becomes a vehicle for comparing assertions. Multiplistic beliefs are similar to a social constructionist view in that knowledge is true based on the beliefs of the knower. Critical thinking again becomes irrelevant. Why should someone question what might be knowable or not knowable by another? The highest level of epistemological knowing is evaluativist. One understands that beliefs and assertions are essentially judgments, and critical thinking is used to determine the validity of those judgments (Kuhn & Dean, 2004). Students who are aware of the stages can examine their own epistemological development in relation to their propensity to use critical systems thinking.

Course Pedagogy

The course pedagogy was designed to enhance personal epistemological development in MBA students who were participating in the course, Globally Responsible Leadership. The class met face-to-face one night a week for four hours over eight weeks. Each class session included activities that focused on one of six competencies: 1) Self-Awareness regarding Thinking and Knowledge, Complexity Management, 3) Intercultural Awareness, 4) Learning Orientation, 5)

Problem Solving, and 6) Decision Making. For each competency, there was an associated assessment. The personal epistemological inventory was given pre-and post (first class and last class) to assess self-awareness regarding personal epistemological beliefs. To assess understanding of complexity management in the context of global leadership and intercultural awareness, a Country Comparative Analysis was conducted. Assessment of learning orientation understanding consisted of a group assignment whereby students researched and designed a Global Organizational Learning Book. In order to assess understanding of problem solving and decision making, students worked in groups to analyze case studies. Students also researched and wrote a collective annotated bibliography on a global systems approach to corporate social responsibility.

The course began with an introduction to epistemology, critical thinking, and metacognition and how the concepts related to global leadership. Faculty administered the *Beliefs about Knowledge in Leadership Decision Making* instrument which was modified from the *Beliefs about Knowledge in Social Work* (Anderson-Meger, 2016). The instrument was designed to measure personal epistemological beliefs. Schommer's (1990) *Epistemological Belief's Inventory* and Gambrill and Gibb's (2009) questionnaire regarding beliefs in social work informed instrument development. The beliefs questionnaire was not only used for analysis, but also generated discussion during the class around personal epistemology and its relationship to critical systems and ethical thinking. Each week the researchers used exercises and assignments designed to promote students' self-awareness around epistemology, cultural awareness, bias in decision making, and research informed decisions. Each exercise and assignment was followed by written student reflections to illicit their beliefs and attitudes. The course assumptions and expectations are summarized in Table 1.

Table 2 identifies the course competencies. Each course competency was tied to learning activities designed to measure the competency. The competencies were based on the literature findings for effective global leadership.

Assignment Descriptions

Country Comparative Analysis Report – United States and developing country. This assignment was intended to prompt critical systems thinking about epistemological knowing through a comparative analysis of the U.S. and a country considered developing or an emerging market. By analyzing different (and similar) cultural norms and beliefs across the two countries, student groups engaged in the

Table 1
Global Leadership Course Assumptions and Expectations

Course Assumptions	Faculty Expectations
• Agenda broken down by hour.	• Students need to wrestle with ambiguity and uncertainty.
• Activity based with learning reflection a key component.	• Students do the work.
• High expectations for in-class and out-of-class work.	• Students figure out how to solve issues in groups.
• Group work.	• Students share leadership role on different assignments.
• Rapid work turn around and demands.	• Students need to value learning and realize learning takes work.

Table 2
Course Competencies and Assessment

• Self-Awareness: Thinking and Knowledge	• PE Inventory (Pre and Post)
• Complexity Management	• Country Comparative Analysis Report
• Intercultural Awareness	• Global Organizational Learning Group Book
• Learning Orientation	• Case Study Analysis
• Problem Solving	• Annotated Bibliography on Global Systems
• Decision Making	Approach to Corporate Social Responsibility

process of critically thinking about underlying judgments and assumptions that drive behaviors, in line with the absolutist and evaluativist level of Kuhn and Dean's (2004) levels of epistemological understanding.

Students began by reading the article, "Dimensions of National and Organizational Culture," by Geert Hofstede, which provided an overview of the theory and an explanation of the dimensions of national and organizational cultures. Next, students completed the Cultural Compass, an instrument based on Geert Hofstede's work on dimensions of national and organizational cultures. Students used the instrument to compare the United States to a country that is considered a "developing country / emerging market" based on Bloomberg's Top 20 list (http://www.bloomberg.com/slideshow/2013-01-30/the-top-20-emerging-markets.html). Finally, students integrated findings into a broader country comparison research report. The report included an examination of both countries with regard to the following:

- Economy: GDP, predominate industries (e.g., energy, agriculture, software/technology, clothing/apparel, minerals, energy, tourism), gap between wealth and poverty
- Government structure, regulation/control
- Environmental and Ecological Impact
- National culture (use Hofestede's Cultural Compass)
- Gender Relations
- Predominant Religion(s)
- Healthcare and Wellness system

- Food system
- Education system
- Median income and Median age of workforce
- Housing and Transportation
- Other: Your Choice

Global Organizational Learning Book. This assignment was designed to follow Checkland's (as cited in Reynolds, 2011) seven-stage process for moving learners from problem to action using critical thinking. To begin, the task was unstructured and amorphous. Students were told they would author a book that consisted of five chapters on the topic of Organizational Learning in the Global Context. Students worked in groups of five, and together they conceptualized the project: what the book would contain, how it would flow, and what purpose and main ideas would be conveyed in the literature. Each chapter synthesized main ideas about components of Organizational Learning in the Global Context. Student groups used a minimum of 15 journal articles (minimum of three articles per chapter). The majority (2/3rds) of articles had to come from scholarly peer-reviewed articles and some from trade journal articles (e.g., *Harvard Business Review*, *MIT Sloan*, *Forbes*), as well as relevant books and book chapters. The conclusion addressed implications for globally responsible leadership. Student groups were also very diverse (including students from China) and experienced issues of power, beliefs, and ideologies, which impacted the group process. Students were challenged to examine the conflicts and understand their own beliefs and assumptions underlying their perspectives.

Table 3
Weekly Reflection Questions

- Identify connections between content covered the last three weeks: Self Awareness of thinking and knowledge, complexity management, and intercultural awareness.

- Describe what you learned from researching and creating a book on organizational learning including, but not limited to content, group process, self, etc.).

- Describe what you learned from researching and creating a book based on the following two factors: a) you had a short amount of time to complete the assignment, and b) you worked with a diverse group of team members.

- What were the personal strategies you used to help yourself be successful? Define Successful in this context.

- What were the personal strategies you used to help your team be successful? Define Successful in this context.

- This week's project required collaboration in order to achieve the standards outlined on the rubric and meet deadlines. Describe what you learned: analyzing your assigned case, generating themes with your group, creating a PowerPoint presentation with your group.

- So far, this course has covered the following competencies required of global leaders: self-awareness of thinking and knowledge, complexity management, intercultural awareness, and learning orientation. Of the lectures and materials provided so far: from which have you learned the most? Least? Why? Which competency are you most interested in developing further? Why?

  Personal Epistemology Reflections:
- A) Review your PE report. Based on the results, what are 5 Key points that resonate with you?
- B) How has the material covered in the course influenced your responses to the PE (if at all)?
- C) How has the course influenced your openness to using research and theories to inform your decisions?

  Stakeholder-based decision making: Review your 5 Key Points from the homework readings and compare with group members.
- A) What questions have been raised for you based on the readings?
- B) Discuss insights gained. (WHAT)
- C) Discuss the implications for globally responsible leaders, as well as the implications for you. (SO WHAT)
- D) How will you transfer this knowledge into action? What is your top development goal based on the knowledge gained in this course? (NOW WHAT)
- Final Reflection
  - Self Assessment Part I: Was the course what you thought it would be? Explain.
  - Self Assessment Part II: Identify your Pre and Post levels of Knowledge and Importance for each course competency according the scale: 0=never thought about it, 1=little to no importance, 2=moderately important, 3=very important.
  - A) How will you transfer the knowledge gained into action?
    B) What is your #1 development goal?

Global Systems Approach to Corporate Social Responsibility – Annotated Bibliography and PowerPoint Presentation (Solo). This assignment was intended to promote critical thinking, as well as systems thinking. Students examined interrelationships of multiple, often contrasting, stakeholder perspectives. Students developed an annotated bibliography that consisted of content describing a global systems approach to corporate social responsibility, including 1) organizational outcomes with examples of competitive advantage, credibility, and viability of a business with enduring stakeholder value (including economic, social, and environmental), and possible disadvantages/burdens (e.g., associated costs); and 2) Organizational inputs and process: corporate governance, communication, problem solving, and decision making. A minimum of ten sources were required, including books / book chapters, scholarly peer-reviewed journal articles, trade journals (e.g., *Harvard*

Business Review), and trade magazines / e-zines (e.g., *Inc*, *Time*, and *Forbes*). At least half of sources had to be scholarly peer-reviewed journal articles. Next, students designed and presented a PowerPoint that summarized main ideas and key learning from annotated bibliography.

In addition to the assignments described above, weekly written reflective questions provided qualitative data on how students were processing the material. At times, the competencies were perplexing to the students. Weekly reflections encouraged students to reflect on their own learning about the competencies being explored. In addition, students were encouraged to think intentionally about class content and discussions within their groups, as well as to identify insights gained about their own personal epistemological understanding. Weekly reflection questions are listed in Table 3.

Each class session was highly structured. Table 4 provides an example of how faculty used intentional design in the course structure.

Table 4
Weekly Class Plan Example

MGMT 635 Globally Responsible Leadership

Competency for Week 2: Managing Complexity
Week Two Reading: Links to trade journal articles posted on Moodle Learning Objectives

Week Two Objectives:

Gain knowledge of:
1. Major issues affecting multinational organizations and the need to address the complex dynamics between organizations, global society, and the environment
2. Complexity Management processes and tools
3. Triune Thinking approach: Ethical, Critical and Systems Thinking processes and tools

Hour #1
6:00 – 6:20 Introductions
6:40 – 6:55 Review purpose of assignments (emphasis on seminar nature of class) and discuss rubrics for assignment 1 & 2

Hour #2
7:00 – 7:10 Review agenda and introduce this week's competency and learning objectives
7:10 – 7:50 Groups of 3 discussion– Jigsaw- each group addresses issues with different systems thinking tools.

Hour #3
8:00 – 8:30 Review powerpoint slides-add to content. Watch VOCA video to summarize current state of global environment - Identify main ideas and integrate responses from prior exercise, compare and contrast responses
8:30 – 9:00 Large Group Debrief – Round Robin, key learning regarding complexity from exercise
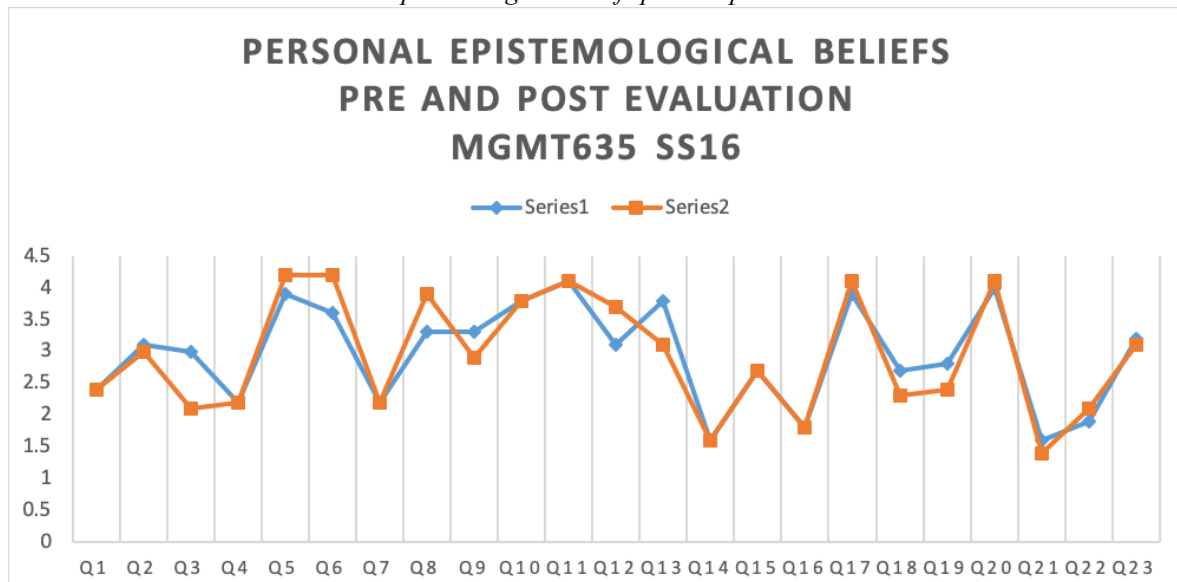

Hour #4
9:10- 9:45 Project Group work on assignments.
9:45 -10:00 Wrap up and next steps.

Figure 1
Personal epistemological beliefs pre and post evaluation.

Pretest. N=16. Posttest. N=12 **Scale**: Strongly Agree(5),Agree(4), Neutral(3),Disagree(2),Strongly Disagree(1)

Measuring Competencies

In addition to developing the pedagogy, faculty examined changes in personal epistemological beliefs and attitudes of MBA students over the duration of the course. Data collection included written student work and observations from exercises, a quantitative pre-post measure of epistemological beliefs published by Anderson-Meger (2016), and evaluation exercises. Students (*n*=16) were typically working adults employed in professional settings. Half the class included Chinese students who were attending the university for their MBA degrees. The course was face-to-face and met one night a week for four hours for eight weeks. Quantitative descriptive data was analyzed with SPSS. The following paragraphs highlight quantitative and qualitative findings on course assessments and exercises. The section on teaching reflections integrates the findings with implications for future classes.

Quantitative Analysis

Figure 1 shows the position of students on the epistemological beliefs inventory at the start of the class and at the end. Faculty were able to determine slight changes on some aspects of epistemological development.

Changes were identified on items 3, 8, 12, 18, and 19 (Figure 1.). Item # 3 was, "Students who learn things quickly are the most successful." The response at the beginning of the course was more in agreement with this statement. At the end of the class, students moved towards disagreeing with the statement, indicating a willingness to accept that learning takes time (Course Competency Connection: Self Awareness). Item# 8 was, "Absolute moral truth does not exist." While students tended to agree with this statement at the beginning of the class, they moved towards even stronger agreement at the end of class. Instructors determined the movement indicated a willingness to acknowledge there are uncertainties in what constitutes absolute truth (Course Competency Connection: Self Awareness and Decision Making). Item # 12 was, "Everything is relative - there is no one better way to know something." Students agreed with the statement at the beginning of the class, but they moved towards stronger agreement at the end of the class. While this suggests students are willing to engage in different ways of knowing, it did not explain *how* they evaluate and judge forms of knowledge (Course Competency Connection: Collaboration). Item # 18 was, "When a (discipline) authority gives direction, they are usually right." and item 19 was, "Instructors in (discipline) should focus on facts instead of theories." Students started in a place of more neutrality with both of these statements and moved towards disagreement at the end of class. At the end of the course, they seemed more willing to question authority rather than just accept without critical questioning. The response to the last statement is interesting. Faculty stressed theories instead of facts. Students who were concrete thinkers wanted specific facts and directions for decision making. The exposure to theories throughout the course may have been frustrating because students search for

Figure 2
Pre/Post evaluation of competency importance.
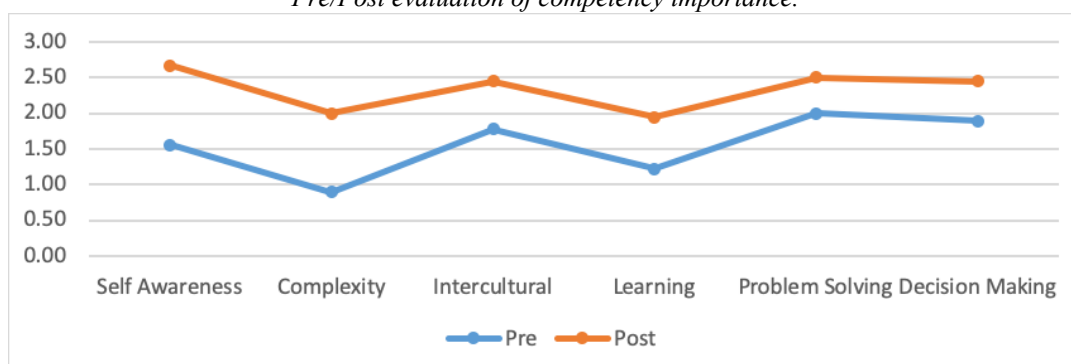
Competency	Pre	Post	DIFF
Self Awareness	1.56	2.67	1.11
Complexity	0.89	2.00	1.11
Intercultural	1.78	2.44	0.67
Learning	1.22	1.94	0.72
Problem Solving	2.00	2.50	0.50
Decision Making	1.89	2.44	0.56

Figure 3
Self-reported change in knowledge regarding global leadership decision making.
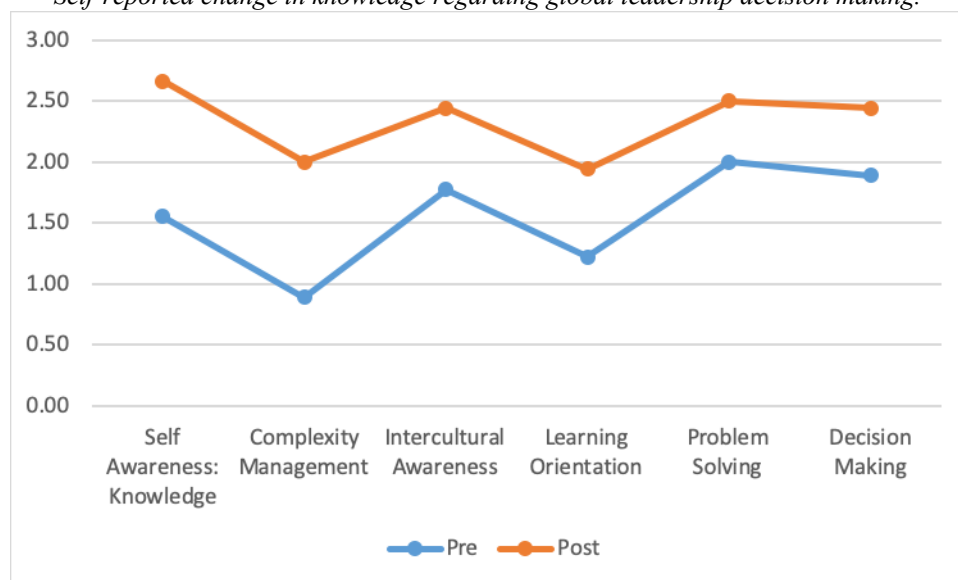
Knowledge	AVG PRE	AVG POST	DIFF
Self Awareness	2.22	2.25	.77
Complexity	2.00	2.11	.88
Intercultural	2.22	2.25	.55
Learning	1.67	1.74	.55
Problem Solving	2.78	2.86	.11
Decision Making	2.78	2.86	.11

Figure 4.
Word cloud – Results of students reflections.

specific formulas to help understand complex situations (Competency: Self Awareness, Decision Making).

In addition to movement on the Epistemological Beliefs Inventory, the faculty saw changes in self-report of how *important* certain competencies were at the beginning and at the end of the course (Figure 2.). The scale consisted of 0=Never thought about it, 1= Little to no importance, 2=Moderately important, and 3=Very important. The resulting change was statistically significant (p=.004).

The instructors saw that students gained the most awareness of the importance of self-awareness, complexity, and intercultural awareness over the course of seven weeks. These were all new competencies that students had not been exposed to in previous management courses. In addition, as part of the final reflection during week seven, students were invited to identify the knowledge gained on each competency using a retrospective pre-post. The scale used for Knowledge consisted of: None = 0, Limited = 1, Moderate = 2, Extensive = 3. While change was noted, it was not statistically significant at the p ≤ .05 level (p = .80).

Qualitative Analysis

Qualitative data analysis utilized the constant comparison method. Coding and categorizing elicited common themes from students' narratives. Open coding identified meaning units in the narratives. Each researcher coded and then compared coding to enhance validity in the coding schemes. Categorizing followed open coding. Each

week student reflections were uploaded into Dedoose® and coded. Researcher One used inductive coding. Researcher Two used deductive coding with codes that emerged during inductive coding. In all, 185 codes were identified over 7 weeks of reflections. Codes were mapped in Dedoose® and downloaded into an Excel spreadsheet. Clear patterns emerged with certain codes, as presented in Figure 4. Word Cloud of Student Reflections. Dominant codes were reviewed in comparison to the Personal Epistemological Beliefs Inventory findings.

Strongest findings supported competencies that were a focus for the course: Learning Orientation, Intercultural Awareness (Interaction), Knowledge – Knowing, Decision Making, Problem Solving, Managing Complexity, and Thinking. These areas were identified as new, or as shifting, from the students' original perspectives.

There is a strong indication that "Intercultural Awareness Interaction," "Collaborating," and "Cultural Awareness," resulted from the mix of Chinese and U.S. students in the classroom and in group work. Students reflected that they felt the influence of "Self Awareness of Thinking and Knowledge," as well as "Learning Orientation," as important mechanisms in decision-making for global leaders.

Teaching Reflection

The purpose of this SOTL project was to examine the personal epistemological beliefs and influences on decision-

making in an 8-week course on Globally Responsible Leadership. The project involved one course with 16 students. The conclusions from the project can help educators enhance personal epistemological development, critical systems thinking and decision making in students. These constructs are very abstract. Interdisciplinary collaborative teaching projects can enhance the classroom environment by showing students how multiple ways of thinking are needed in today's global environment.

Faculty gained insight to how personal epistemological awareness and critical systems thinking enhances decision making for future global leaders. Students were asked to complete several major assignments that required critical systems thinking processes and reflection in addition to research on context and factual information. In the beginning of the course students were suspect about the prominence of self-awareness, reflection, and theoretical concepts. There was visible and audible frustration observed in the classroom, and resistance was identified by week three in students' reflections. Students clearly wanted a pathway or "tool" they could use to "be a global leader". Diversity in the course was an advantage and a challenge. The mix of U.S. and Chinese students helped students understand each other's worldviews and beliefs but was also met with frustration. Faculty had to push students to develop an empathic understanding of "the other." The understanding did not come naturally.

Instructors met weekly to reflect on process and content. The instructors were intentional about revisiting concepts over the weeks to create a connection from one week to the next to achieve learning transfer. The intentionality of class design and reflection was critical to tracking students' processing and attitudes. Faculty were very explicit in their expectations. Even so, students often expressed frustration at the ambiguity involved in the projects. For example, while faculty scaffolded assignments in terms of complexity, the "how" they would complete the assignments was left to the students.

Part of co-teaching the course involved weekly debriefings between the instructors. During meetings faculty discussed each class, reviewed written work, and determined how to approach the next class. This extra time and attention was needed to process students' thinking. Table 5 is a summary of personal reflections on teaching this course.

Faculty learned students' sense of self and beliefs impact decision-making and openness to new ideas and information. The capacity of students to assimilate new information is intimately connected to their ability to relate the material to their personal lives, values, and worldviews. The strong learners are going to engage in the search for deeper meaning. This resonates well with the research from Ambrose, Bridges, DiPietro, Lovett, and Norman (2010)

that personal experience and self-awareness are going to motivate learners. Strong learners will also exhibit the ability take risks and develop their metacognitive awareness. Faculty were pleased with the changes exhibited in the competencies of self-awareness, critical systems thinking, and epistemological development.

Implications for Future Teaching

This course was designed to increase students' competencies in self-awareness, critical systems thinking, and epistemological development to enhance decision-making. Teaching critical systems thinking requires a process where one is pushed outside of their established thoughts and beliefs to examine issues and practice from new perspectives.

Based on a modest shift in the Pre-Post Personal Epistemological beliefs assessment (figure 1), the faculty concluded that a change occurred in personal epistemological beliefs consistent with what Kuhn and Dean (2004) referred to as the highest level of epistemological knowing: evaluativist. Specifically, results indicate a shift in learning orientation (more thoughtful), acknowledgment that there are uncertainties in what constitutes absolute truth and different ways of knowing, and increased willingness to question authority and to work with theories versus facts. The faculty concluded that through the use of weekly reflection questions, students became aware of their own epistemological development in relation to the use of critical systems thinking.

Faculty designed classroom activities that engaged students in dialog, encouraged meaning making, and challenged their way of thinking based on the complexity and ambiguity of "how" to accomplish expected outcomes, particularly with the cultural diversity in the groups. The importance of listening to multiple and diverse perspectives was central for students to learn about themselves and others. Checkland's (as cited in Reynolds, 2011) seven-stage process for moving learners from problems to action using critical thinking systems was engaged using explicit instruction on the nature of epistemology early in the class, and students were continually asked to examine the values and beliefs in their perspectives throughout the course. As can be seen through open-ended comments in student reflections (figure 4), students identified a shift in their perspectives regarding learning orientation, intercultural awareness interaction, decision making, and collaborating. This suggests an impact of high levels of diversity within student project teams. In this case, international students from China were working with U.S.-born students.

Faculty determined that intentional instructional design – along with implicit attention to students' awareness of systems, values, and personal epistemology – is necessary to enhance critical thinking and decision making (figure 5).

Table 5
Teacher reflections

• Met weekly to reflect on process and content.	• Some students dominate/power struggles. Gender? Culture?
• Students suspicious about theory and reflection. Why are we doing *this*?	• Fatigue impacts learning!
• Very difficult to examine *how* learning is happening. We only know what we observe or can document.	• Small group dynamics – we had to carefully approach. Not solve issues for students but let them know we are supporting them in their struggles.
• Diversity of the class was an advantage.	• Learning takes TIME. Condensed courses good for …. What?
• INTENTIONAL class design was critical to tracking what was happening.	
• What we think is important is not necessarily what students think is important – how to bridge the gap?	• Need to revisit concepts over and over to create thread and connections from one week to the next. Only way to achieve learning transfer.
• Explicit communication of expectations (ex. Dealing with ambiguity is necessary in the global environment, therefore we are going to do xyz).	• If you teach a night class – be a night person. We were not.
• Faculty need ongoing education in the teaching/learning process.	• Hard to stay positive but we supported each other.
• Frustration – week 3 seems like nothing is moving ahead, resistance.	• In end it was very gratifying to see the results, however small.

Figure 5
Instructional design for epistemological development
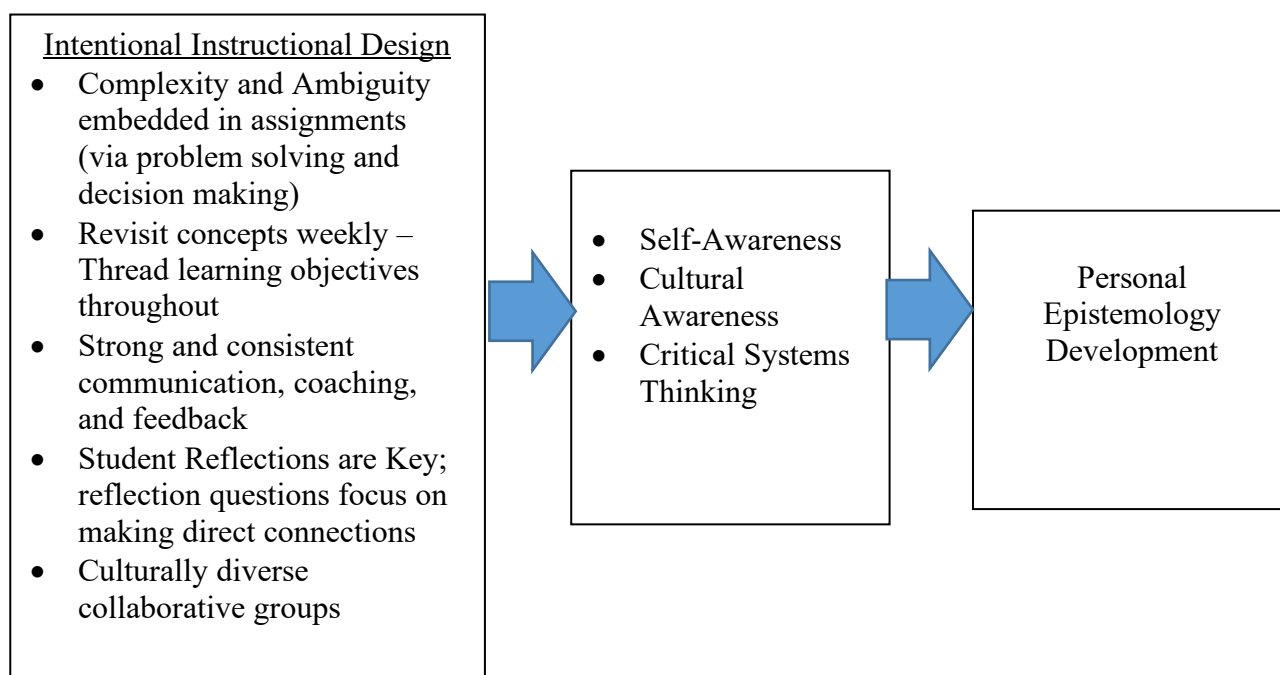
Important lessons were learned from this experience. Overall, teaching for personal epistemological development and critical systems thinking is not easy. Frustration will occur, both on the part of students and faculty. Students who tend towards concrete thinking, or absolutist/ relativistic states of epistemological development will resist through procrastination, complaints, or outright claims that things do not make

sense (Kuhn & Dean, 2004). Diversity is an advantage to faculty and students as they grapple with the concepts and thinking processes. Classroom dynamics can emerge based on culture/power struggles and group dynamics. Faculty need to anticipate this and proactively manage it for an effective learning environment. Students wish to remain in their comfort zones. Faculty must be okay with, and anticipate, the group process: confusion

(forming), frustration and fight/flight (storming), norming, and performing (Tuckman & Jensen, 1977). The outcome is worth the struggle.

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Mentoring Graduate Students in the Publishing Process: Making it Manageable and Meaningful for Academics

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In universities all over the world, academics are compelled to increase the quality and quantity of their own research while also attempting to mentor a new generation of scholars. In this work we explore literature surrounding significant issues in higher education affecting faculty mentors of graduate students who are themselves engaged in the publishing process. In light of this literature, we propose a spectrum of approaches for mentoring graduate scholars in ways that are professionally meaningful and manageable for faculty mentors.

As university professors engaged with graduate education, we often participate in presentations for graduate students about "how to publish." We also engage in informal conversations with faculty colleagues about how to best mentor graduate students interested in moving their academic writing into publishable pieces. Just as often, we sit down with our own graduate students to help them begin their publication journeys via thesis, dissertation, or course paper. Embedded within these requests to elevate graduate students' knowledge about research, writing, and publishing practices are indicators of gaps in the knowledge transfer between accomplished academic authors and graduate students aspiring to become accomplished academic authors.

These "gaps in knowledge" represent two interrelated problems, which we believe impact many institutions of higher education worldwide. First, they represent *a pedagogical problem within graduate education* (e.g., what are the best ways to teach graduate students how to navigate the publishing process?). Second, they represent *a persistent problem of increasing demands on faculty time and complex workload expectations related to research, teaching, and service, including mentoring numerous graduate students* (e.g., how do these important teaching/mentoring activities move from being invisible, unrewarded work to visible, rewarded work?). The purpose of our current work is to review literature that illuminates these interrelated challenges. From this, we propose approaches for mentoring graduate students in ways that are professionally meaningful and manageable for a variety of faculty mentors.

Statement of Positionality

Graduate education occurs in many types of institutions and disciplines. We provide this statement of positionality because we believe that our own mentorship experiences may resonate with those experienced by many similarly situated graduate educators in the international teaching community who can benefit from our work. We are all women who teach and research with graduate students in the United States. We work in three separate non-STEM disciplines (communication studies, higher education, and sport administration). Although one of us has recently changed institutional affiliation, at the time of this writing we held various ranks (assistant professor, associate professor, and full professor) at Ball State University, a mid-sized (22,513 students) *Higher Research Activity Doctoral University*[1] in the Midwestern U.S. Like many others of its kind, our institution requires that we excel at teaching both graduate and undergraduate courses, as well as engage deeply in research and service activities.

The primary educational focus at this university is on undergraduate education. However, the university has 153 graduate programs, including 13 providing doctorates (Ball State University Graduate School, n.d.), and serves 5,509 graduate students (Ball State University Fact Book, n.d.). Each of us has served as the principal advisor for many graduate students at the master's level and has published manuscripts with some of these students based on their work. Although only one of us has served officially as the principal advisor for doctoral-level students, we have all served as committee members on numerous doctoral committees. Additionally, we all have provided considerable

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[1] The Carnegie classification system categorizes institutions' level of research activity based upon research and development expenditures, research staff, and doctoral conferrals. Two indices emerge from these factors, including level of research activity and per-capita research activity. Using these indices, institutions are classified as one of the following: *highest research activity*, *higher research activity*, and *moderate research activity*. In the United States, there are 115 *highest research activity doctoral universities*, 107 four-year or above *higher research activity doctoral universities*, and 112 moderate research activity doctoral universities.

informal mentoring to a wide number of doctoral students as they have worked toward publication goals.

Literature Review

We conducted a *scoping literature review* in order to shape our understanding of the types of persistent problems in higher education, which impact the ways in which faculty members worldwide mentor graduate students who wish to learn about publishing. Colquhoun et al. (2014) define a scoping literature review as a "form of knowledge synthesis that addresses an exploratory research question aimed at mapping key concepts, types of evidence, and gaps in research related to a defined area or field by systematically searching, selecting and synthesizing existing knowledge" (p. 1295). We used Arksey and O'Malley's (2005) six-step process[2] to guide our choices in producing the literature review organized by our selected domains (as represented by sub-headings) that follow.

Achieving Success in Academic Publishing

Arriving on campus with an already-established publication record is an expectation that has evolved over the past 25 years for those entering the academy (Bartkowski, Deem, & Ellison, 2015). As Mullen (2001) noted nearly two decades ago, "[T]he practice of assistant professors beginning their publication journeys after being hired is arguably a luxury of the past" (p. 119). Despite this important norm, Sword (2017) laments that many graduate students have not been trained adequately in the skills needed to succeed in academic publishing. Scholars writing on the issue have articulated many reasons for this. For example,

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[2] Arksey and O'Malley (2005) articulated the following 6-step process for conducting a scoping literature review:

1. Identify the research questions: Decide upon the domain that needs to be explored.
2. Find the relevant studies, through the usual means: electronic databases, reference lists (ancestor searching), websites of organizations, conference proceedings, etc.
3. Select the studies that are relevant to the question(s).
4. Chart the data (i.e. the information on and from the relevant studies).
5. Collate, summarize and report the results.
6. (Optional) consult stakeholders (clinicians, patients and families, policy makers, or whatever is the appropriate group) to get more references, provide insights on what the literature fails to highlight, etc.

some graduate programs mystify the writing process for their graduate students (Cuthbert & Spark, 2008). And even when faculty members are transparent, they may coach students on what Belcher (2009) terms "the micro aspects of writing," such as documentation styles, rather than focusing on the more critical (but more challenging to teach) "macro aspects of writing" (p. 191) such as articulating and supporting one's argument and maintaining a clear structure. Graduate students can also fall into a cycle of procrastination and binge-writing (Boice, 2000), which can derail them as they enter their professional life when they must demonstrate tenacity, consistency, self-efficacy and discipline in order to see their work published (Sword, 2017). Belcher (2009) observes that although universities sporadically offer workshops on academic writing, such workshops rarely focus explicitly on the writing process or provide specific strategies for improving writing productivity.

As a redress to the issues articulated above, there is an extensive body of work designed to help faculty members and graduate students increase their research productivity. Perhaps the best-known scholar in this realm is Boice (1989; 2000) who, in order to address the procrastination-binge cycle, developed an intervention whereby academics established regular writing routines. The notion of maintaining a moderate, but inviolable, writing schedule has become a staple piece of advice for many authors researching and writing on the topic (e.g., Goodson, 2017; Jenson, 2017; Silva, 2007; Sword, 2017).

Much of the writing on this topic stresses the importance of building the types of psychological habits and social structures that support productive academic writing. For example, Goodson (2017) discusses the need for adjusting one's attitude toward writing and provides clear strategies for achieving this goal. Others (e.g., Boice 1983; Goodson 2017; Silva 2007) provide advice for managing distractions that impede writers. Others explain tactics, such "separating the generating from the editing" (Goodson 2017, p. 32), to help writers push past writer's block. Still others accentuate the importance of peer writing groups (e.g., Aitchison, 2014; Chittum & Bryant, 2014; Harris, 2006) to help writers stay motivated, stay accountable, and receive social support from peers with similar goals.

The literature also provides a wealth of advice on the more instrumental aspects of academic writing. For example, Silva (2007) provides clear strategies for writers to use when prioritizing goals. Mikhailova and Nilson (2007) detail a method designed to help writers organize the necessary materials, structure their writing time, and keep clear records of the submission process. Belcher (2009) takes readers through a 12-week plan for publishing a scholarly piece in an academic journal, offering detailed instruction on every aspect of

manuscript development including designing a writing plan, building and advancing one's argument, strengthening structure, sending the article to the most appropriate journal, and even responding to editors' feedback. In sum, the literature articulates many empirically-supported methods for increasing scholars' writing capabilities. However, mentoring graduate students to follow these methods is often problematic, given the myriad time and resource pressures that many faculty members experience.

How "Invisible Work" can Affect Academic Advancement

To greater or lesser degrees, academic service is part of most faculty members' lives. A number of authors (Austin, 2002; Buckholdt, 2013) have reported on the challenges faculty members face trying to balance their service commitments with their teaching and research responsibilities. Other authors (Edley, Hammers, & Shabazian, 2015; Green, 2015) have unpacked the various forms of "academic labor" that intensify faculty members' already large service load. According to Edley et al., such academic labor is often "rendered invisible, or at least unintelligible by common institutional discourses of evaluation" (p. 106). In other words, as Green observes, "[T]here's no place [to document invisible academic labor] on a CV or in an end-of-year report" (para 9). Common forms of "invisible care work" include counseling peers and students through personal crises and locating appropriate resources to help meet their needs. Edley et al. add that such work also includes helping students and colleagues as they navigate institutional processes, advocating (often in opposition to administration) for better policies, and building interpersonal and community relations within departments. Mentoring graduate students through the writing process can often be perceived as a form of invisible academic labor, especially when there is no tangible product for the faculty mentor. Indeed, as Edley et al. ask, "[I]f there is no formal, peer-reviewed publication at the end of the day, how does the research-related intellectual effort of this kind of labor get articulated for purposes of professional advancement" (p. 106)?

A number of authors (Glazer-Raymo, 2008; Morley, 2014; Terosky, O'Meara, & Campbell, 2014) argue that women in particular lag behind their male counterparts because they often perform the types of vital, yet invisible, undervalued, and unrewarded forms of academic work articulated above. Terosky, Phifer, and Neumann (2008) observe that "women find themselves in vulnerable positions in regard to career advancement because they carry disproportionately higher workloads in the areas of teaching, service, and lower-level administration" (p. 60). For example, in one

study of productivity at a research-intensive university, Misra, Lundquist, Dahlberg Holmes, and Agiomavritis (2011) found that women associate professors spent up to eight hours more per week (over 200 hours per year) on service, mentoring, and teaching than did their male counterparts, while male associate professors spent nearly eight hours more per week on research (over 200 hours per year) than did their female counterparts. Given that research productivity is often viewed as the chief criterion for faculty advancement, this differentiation gave men a distinct advantage over women. The question remains then, how can faculty (and in particular, women) be effective mentors for graduate students while simultaneously protecting their academic advancement and work/life balance?

Mentoring Graduate Students in the Publishing Process

A large body of scholarship exists defining mentorship/advising and delineating the many functions subsumed therein (e.g., Anderson & Anderson, 2012; Titus & Ballou, 2013). As a whole, mentoring and advising focus on the relationship between faculty and students in which the faculty mentor guides the student toward desired outcomes such as publishing (Titus & Ballou, 2013). Scholars (e.g., Kamler, 2008) suggest that strong academic mentorship factors heavily into graduate students' ability to learn about disciplinary writing practices and to publish successfully. Literature on how faculty mentors influence novice researchers can be usefully divided into two broad categories: (1) that which demonstrates how faculty mentors can serve graduate students in more traditional mentor/protégé roles; and (2) that which demonstrates how faculty mentors can facilitate more formal, structured opportunities for promoting scholarly activity, such as writing groups, workshops, and/or courses.

Mentor-protégé models. Kamler (2008) argues that close mentor/protégé relationships between faculty and graduate students are imperative for helping graduate students negotiate the challenges inherent in academic publishing, such as learning how to write for a given scholarly community, strategically selecting publication outlets, and interpreting, contextualizing, and appropriately addressing commentary from journal reviewers. Engstrom (2003) suggests that mentors also perform social support and esteem-building tasks, as well as model for protégés "the discipline, habits, and commitment required of prolific writers" (p. 270). Overall, Deane, and Peterson (2011) argue that mentors must support the development of student autonomy by "acknowledging the student's perspective, encouraging the student to be open with their ideas and providing opportunities for students to make their own decisions" (p. 794). Simpson and Matsuda (2008) emphasize four

roles faculty mentors should assume as they help develop graduate students' publishing skills. These include creating opportunities for graduate students to publish with them, ensuring that graduate collaborators have the resources needed for success, allowing protégés to observe them "in action," and introducing protégés to professional social networks.

Writing workshop/course models. Scholars (e.g., Aitchison, 2010; 2014; Cuthbert & Spark 2008) argue the importance of faculty mentorship in designing and facilitating graduate-level writing groups. The success of such writing groups depends on clearly articulated expectations and goals (Belcher, 2009; Plakhotnik & Rocco 2012), as well as opportunities for writers to receive constructive critique from colleagues (Aitchison, 2014; Belcher, 2009). Writing groups come with a number of challenges, including expert members assuming excessive control over group decisions and differences in group members' expectations about appropriate levels of productivity (Nairn et al., 2015). However, benefits of such groups include the fostering of supportive communities in which graduate students share the challenges encountered in the writing process and strategies for managing such challenges (Belcher, 2009). Other benefits include the demystification of the publication process, diminished feelings of isolation, increased comfort and confidence in one's ability to publish (Belcher, 2009), and increases in graduate students' submission of manuscripts to academic outlets (Kamler 2008) — perhaps the most tangible benefit of participation in such a group.

Mentorship Approaches that Serve Faculty Interests

Our scoping literature review, as well as our combined 47 years' collective experience working with graduate students, highlights a number of academic realities that affect how we mentor graduate students as they learn about academic writing and publishing. First, we know that graduate students need help when learning how to navigate the research, writing, and publishing process. Second, we know that faculty members are most often the people best equipped to help students in this journey. Third, we know that providing graduate students with appropriate mentorship is often challenging for faculty in light of demanding professional expectations that do not recognize or reward it adequately.

The spectrum of approaches we recommend in this section derive from our own extensive experience as graduate mentors (collectively, we have used all of the approaches we recommend). Additionally, all of the approaches we recommend are well supported by the literature. While institutional context, faculty workload demands, and levels of faculty interest/disinterest can vary greatly for those engaged in graduate education,

there are some unifying dimensions that make it possible to offer these broad approaches to help faculty who mentor graduate students.

Approach One: Improve One-on-One Mentorship Practice

Assess the strengths and weaknesses in your own mentorship abilities. In order for faculty research mentors to be both effective and efficient in their mentor role, they must first possess a general awareness of their own mentorship preferences, behaviors, and competencies. Through guided self-reflection and assessment, faculty can learn their unique style of mentorship and gauge areas of strength and opportunities for development. Self-assessment tools which can aid faculty in this effort include the *Principles of Adult Mentoring Scale* (Cohen 1995), which assesses six interpersonal behaviors and functions identified by experts as significant in mentor relationships between faculty and adult learners in higher education (relationship emphasis, information emphasis, facilitative focus, confrontive focus, mentor modeling, and student vision). The *Mentoring Competency Assessment* (Fleming et al., 2013) is a shorter inventory that examines six mentoring competencies (maintaining effective communication, aligning expectations, assessing understanding, addressing diversity, fostering independence, and promoting professional development). When considering self-reflection of one's mentoring behaviors and competencies, these assessments can be used as a baseline from which to understand, analyze, and improve one's academic mentoring practices.

While mentor development may lead to greater student outcomes, the time invested may also inhibit faculty academic achievement and lead to poor work/life balance. Bird (2001) recognized that there is often an "over-expectation" about what mentors will provide. It is essential for faculty to monitor their own research productivity and periodically reassess work/life balance in order to maintain healthy boundaries with respect to mentor obligations. The 15-item modified *Work/Life Balance Self-Assessment* scale (Haymann, 2005) can be used by faculty to examine the extent of work interference with personal life, personal life interference with work, and work/personal life enhancement. If faculty responses reflect low work/life balance, reflection on the extent of one's mentoring obligations may lead to healthy changes.

Develop systematic, codified strategies to promote better one-on-one mentorship.

While one-on-one membership carries numerous benefits for faculty and is a powerful factor in graduate

students' writing success, it can also require tremendous time and intellectual investments that do not always translate to professional recognition and advancement. Rackham Graduate School at the University of Michigan (2015) provides an extensive guide for developing excellent academic mentors. Here we have adapted a number of approaches articulated in that document, which we believe promote more effective and *efficient* methods of mentoring graduate writers.

Introductions. Meet with your protégé to find out about their previous educational experience and the research projects that interest them.

Establish expectations. Establish clear expectations about your protégé's writing goals, helping them to focus such goals and set feasible timetables, establishing boundaries about meetings and access to you, discussing with the student your expectations of the quality of work they should submit to you, articulating how you will assess their work, and explaining the standards for authorship in your field.

Lift the veil on 'academic' writing. Have an honest discussion(s) with your protégé about how academic writing happens. As a touchstone to guide your discussion, assign one of the many recent, but accessible books on the topic (e.g., Jensen, 2017; Silva, 2007; Sword, 2017). Be sure to listen to your protégé's experiences, but also share your own. Help them to understand that it is normal to struggle with writing, but also that they can develop an excellent set of skills for writing in the academy.

Invest in formal mentorship training. A number of scholars (e.g., Pfund et al., 2013) propose mentor training workshops that address targeted mentoring techniques. These include helping mentors to develop a mentorship plan, use clear communication strategies with their protégés, set clear goals and expectations for the mentor-protégé relationship, manage their own time, provide and receive feedback, work effectively with diverse students, foster protégé independence, and promote professional development.

Despite the promise of mentorship training, educators are often faced with barriers to enacting these efforts. For example, many faculty members believe mentoring skills are developed solely through experiential learning that occurs during engagement in the mentor-protégé dyad, in which formal mentor training is perceived as unnecessary (Cohen, 1995). Furthermore, given that faculty may already be overloaded by the "invisible work" of mentorship, mentor education is often treated as a low priority by faculty given the current demands on their time (Cohen, 1995). With respect to the administration of mentor training programs, institutions of higher education may not have the resources to implement a formal training program (Pfund et al., 2013).

Approach Two: Institute "Writing for the Academy" into Existing Program Curriculum

A useful place to start is by meeting with other graduate faculty members to gather their perspectives about mentoring students through the writing process. Such a "mentoring audit" should target what has worked (and why), what has not worked (and why not), frustrations, roadblocks, program constraints, and taken-for-granted assumptions surrounding faculty-student writing mentorship efforts.

After performing a mentoring audit, involved faculty members should discuss the extent to which they can institute systematic training about the writing process into the existing curriculum. Some programs may be able to dedicate a full course to such training (see Belcher, 2009; Nolan & Rocco, 2009), for clear guidelines for developing such a course). However, this may not be possible or particularly useful for many programs (e.g., "master's only" programs in which less emphasis may be placed on producing academic writers than in doctoral programs). A more moderate approach might include the development of "modules" on various topics related to academic writing into already-existing courses. For example, most graduate programs have an "introduction to graduate studies" course, a number of "methods" courses, or required graduate colloquia—any of which would be appropriate places for placing modules that focus on academic writing.

Within course modules, faculty can point graduate students to available online resources and materials to supplement course curriculum on academic publishing. For instance, social media pages discussing academic writing and publishing—such as Acwri (@Acwri; http://phd2published.com/acwri) or Dr. Raul Pacheco-Vega's pages (@raulpacheco; http://raulpacheco.org) — could be integrated into the reading. Faculty could also discuss how key modules (e.g., "strategies for overcoming common writing roadblocks," or "tools for reviewing literature more efficiently and effectively") could be integrated into courses/colloquia throughout the academic year. Institution of such modules into the curriculum ensures consistency of message among graduate students and can be developed over time. Because such a program is highly visible, recognition for the teaching and service efforts of faculty who have developed the program and developed individual modules can be documented and quantified in faculty CVs. Collateral benefits include the fact that, as the modules diffuse throughout the unit, both faculty and students can benefit from the teachings.

Graduate departments may also adapt a manuscript-style approach in which the expectations for graduate student scholarship shifts from more traditional comprehensive research projects such as theses or dissertations, to multiple publishable

manuscripts (Jackson, 2013). Most often students submit one article by the time of proposal and the remaining two articles by the defense, mitigating the delay of transforming the comprehensive project into smaller articles at the conclusion of the thesis/dissertation process. Although this approach has a number of potential pitfalls such as lack of student ability and ownership (Pretorious, 2017), it also carries a number of potential benefits, including graduate students' increased competency initiating new projects post-graduation, faculty advisors benefiting from guaranteed article submissions, and increases in the reputation of graduate programs (Jackson, 2013).

Approach Three: Institute Interdisciplinary Workshops for Graduate Researchers

As we acknowledged earlier, this essay came about because we are scholars from three different disciplines who have often conducted university-wide workshops for graduate students on "how to publish." The fact that we are asked to facilitate a 90-minute workshop at least once a year speaks to the reality (in our university at least) that few structured educational opportunities exist to help graduate students understand the writing and publishing process. However, scholars (e.g., Silberman, Biech, & Auerbach, 2015) critique such short "one-shot" forms of adult learning for providing low-levels of learning.

Thus, we suggest that invested faculty members might institute a more programmatic interdisciplinary structure for helping graduate students learn how to write for the academy. Our own experience provides us with a set of "frequently asked questions" that might guide faculty members as they construct each workshop. Ideally, each workshop would be devoted to addressing one or two of these questions. Ideas for workshops include: (1) What resources are available to students on-campus to help them make the best use of databases? (2) How do students develop both long-term and short-term publishing goals? (3) How do students learn academic writing? (4) How do students learn the time and task management skills needed to publish? (5) What role do academic conferences play in the publishing process? (6) How do scholars select the most appropriate journal for their work? (7) What happens when a scholar receives a "revise and resubmit" decision from an editor? (8) How do scholars emotionally deal with rejection?

The workshop structure could take a number of forms, such as not-for-credit short courses offered university-wide or within disciplines. The courses could be team-taught as well. Belcher (2009, n. d.) offers a model for developing such a course and also offers syllabi of writing courses ranging from six to 15 weeks. Challenges in offering such an interdisciplinary course might include disciplinary differences about "best writing" practices, workload expectations, management of the potentially large numbers of students, and student heterogeneity (Belcher, 2009). Potential benefits are similar to those listed in "approach two," with the exception that teaching this course is likely to result in even wider university or disciplinary recognition.

Practice Implications for Faculty Mentors

Our scoping review demonstrates the ways in which students and institutions can benefit from more robust research mentoring practices. However, it also demonstrates that faculty do not always benefit from mentoring in ways that advance their own professional agendas. As Damrosch (2006) suggests, academic changes are most enduring when they serve not only the students and the institution, but also the faculty. It is with this concept in mind that we articulate a number of practice implications for faculty in a wide variety of institutions and disciplines as they consider developing strategies to integrate research mentorship into their professional practice.

One clear practice implication emerging from our work is that, in order to maximize productivity, mentors should consider seriously co-authorship with protégés. Maher (2014) argues that working alongside mentors and seeing them "in action" is an excellent way for students to experience what it takes to achieve success in academic publishing. It can also maximize faculty members' own research productivity. In order to optimize such a relationship, however, faculty members need to develop a clear set of expectations and benchmarks for protégés, making these explicit to potential protégés early in the mentor/protégé relationship and providing periodic, honest, and critically constructive assessments of the protégé's work as the relationship develops and the graduate students moves from "protégé" to "colleague."

A second way faculty members can ensure that their mentorship efforts also serve their own interests is to help their departments, colleges, and universities institute programs that support mentorship of graduate students in the publishing process. For example, faculty members can develop for their departments a number of policies such as a clear and common set of expectations for faculty mentors and for students to follow in such mentoring relationships. Faculty members can also develop formal programs designed to train mentors at various university levels on such topics as "communicating research standards and responsibilities to graduate students" or "working with an underperforming protégé." Not only could development of such initiatives be included in faculty evaluation for tenure and promotion, they also carry the potential to raise the profile of the department, college, or university.

A third way for faculty members to ensure that their mentorship work is more visible and thus more rewarded is to include it in their own research agenda. The scholarship of teaching and learning, which is, in large part, characterized by reflexive consideration of our own and others' teaching and learning practices (Adcroft & Lockwood 2010), has gained wide purchase within the academy. Clearly mentorship is a key teaching practice, and—as we suggest in the next section—ample room remains for further critical and empirical exploration of the many issues surrounding the ways in which it "plays out" in academic communities.

Limitations and Future Directions for Research

While the employment of a scoping literature review enabled us to map out research in higher education and identify gaps related to the issue of faculty mentoring graduate student publishing, we acknowledge the limitations of this methodological approach. As opposed to systematic reviews, scoping reviews do not attend to quality appraisal of the evidence or synthesis of the data, which considers the weight of the evidence based upon the effectiveness of the interventions reviewed (Arksey & O'Malley, 2005). Moreover, while this paper reviews a breadth of literature from a range of study designs, future researchers should consider conducting a systematic review of one of the three approaches discussed (e.g., instituting a series of interdisciplinary workshops for graduate students) to achieve a more detailed analysis and appraisal. Additionally, future researchers should consider implementing a particular approach at their respective institutions to empirically test the effectiveness of the various strategies reviewed at their particular institution.

Conclusion

For most faculty members, mentoring graduate students as they work to become published scholars is a complex balancing act that often results in graduate students receiving inadequate mentoring and/or faculty members performing too much "invisible labor" for too little professional reward. Drawing from the literature and from our own practices, our current work provides concrete and practical strategies that allow faculty mentors to effectively mentor graduate students toward publication while also enjoying institutional compensation for their labor.

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An Internalization Project to Develop Global Competency Across the Disciplines

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The purpose of this article is to describe an internationalization project that was developed at the University of Central Florida (UCF) in Orlando, Florida to provide faculty across the disciplines with assignments they can use to foster the development of their students' global competency. After describing the project and the series of assignments they developed, the authors focus on one of the assignments, a cultural interview, and describe how it was adapted in two disciplines: hospitality management and political science. Overall, the students found the experience to be a positive one. They gained confidence as a result of conducting the interview and developed a broader perspective on their chosen profession. Finally, many students reflected on the fact that before completing the interview they thought their level of cultural competence was much greater than it actually was. The interview assignment is a valuable tool for faculty who wish to help their students develop their global competency whether the primary motivation is to help students become more competitive in the job market or to foster students' development as engaged global citizens. As shown by the findings of this study, the assignment has the potential to do both simultaneously.

The purpose of this article is to describe an internationalization project that was developed at the University of Central Florida (UCF) in Orlando, Florida to provide faculty across the disciplines with assignments they can use to foster the development of their students' global competency. Faculty in many disciplines have recognized the need to develop students' global competency and to internationalize the curriculum (Brustein, 2017; Hanson, 2010; Rajala, 2012; Soria & Troisi, 2014). In fact, there is widespread recognition in higher education of the need to prepare students to function as global citizens both in their professions and in their personal lives. When discussing the need for an internationalized curriculum, scholars typically mention the fact that "the world has become highly interconnected and interdependent" (Rajala, 2012, p. 1377), and the problems we face have become much more complex (Keohane & Nye, 1987). In some cases the emphasis is on the need to help students develop their global competency so that they can compete successfully in the workplace. In other instances, the emphasis is on preparing students to become globally responsible citizens (Hanson, 2010). But whether there is an emphasis on market-driven or social concerns, educators agree that if we do not develop a comprehensive internationalized curriculum that is available to all students, we will "fail to prepare our graduates for the enormous global challenges of the 21st century" (Brustein, 2017, p. 390).

Defining Global Competency

An examination of many definitions of global competency reveals that they all agree on certain key aspects of what it means to be a globally competent individual (Appiah-Padi, 2001; Brustein, 2017; Hanson, 2010; Rajala, 2012; Soria & Troisi, 2014). The skills and abilities associated with global competency include awareness of, and sensitivity to, other cultures; an understanding of the interconnectedness and interdependence of the peoples of the world; the ability to think critically about global and local issues; and the ability to communicate and collaborate with diverse others. Globally competent individuals view themselves as citizens of the world rather than of a particular nation or culture.

Those scholars who have a market-driven perspective would also emphasize the fact that developing global competency will allow professionals to understand consumer tastes and therefore succeed economically (Friedman, 2005), while scholars who approach global competency from the perspective of social responsibility would emphasize the ability of global citizens to take action and play a role in transforming their world (Freire, 1970). These two perspectives are not necessarily always incompatible as some definitions emphasize the ability of global citizens "to act to advance both their own enlightened self-interest and the interest of people elsewhere in the world by understanding the interconnection of all living things" (Appiah-Padi, 2001).

Study Abroad and On-Campus Alternatives

While educators may differ on some aspects of the definition of global competency or on whether the primary emphasis should be on social or economic concerns, they do agree that institutions of higher education must find effective ways to prepare students to be globally competent. Together with an increased emphasis on the important goal of internationalizing the curriculum has come the acknowledgement that traditional study abroad programs are not an effective means for achieving that goal. Only a small percentage of U.S. students study abroad; for example, the National Association of Foreign Student Advisers (NAFSA) reports that for the 2014-2015 academic year just over

1.5 percent of all U.S. students enrolled at institutions of higher education in the United States participated in study abroad programs. In some disciplines that number is even smaller; for example, engineering students are often unable to find time to study abroad because of "curricular rigidity" (Rajala, 2012, p. 1381). Typically, engineering students must complete a large number of required courses in order to earn their degrees and have little time to pursue electives. Further, students in many disciplines are prohibited from studying abroad because of the cost of such programs.

Given the small number of students who are able to take advantage of the opportunity to study abroad, faculty have recognized the need to create on-campus programs and courses to help students develop a global perspective. To this end, many universities have added diversity and international studies courses and programs to their curriculum. In many instances, students may only take one or two courses with a global focus. They may complete their studies without developing global competency, proficiency in a foreign language, or an in-depth knowledge of any culture outside the United States (Brustein, 2007). Further, many stand-alone international studies programs have been criticized for not aligning these studies with expertise in a particular discipline (Brustein, 2007). At the same time, faculty across the disciplines have recognized the need to prepare students to develop global competency in order to succeed in their professions and to become globally minded citizens who have the ability to contribute to society both at home and abroad (Flammia, 2012; Hanson, 2010; Rajala, 2012; Reimers, 2009).

Discipline-Specific Assignments to Foster Global Competency

Faculty members in many disciplines have developed assignments designed to foster students' global competency. Most of these assignments emphasize the importance of giving students the opportunity to interact with diverse others. Some rely on virtual collaboration while others draw on the international population on campus to facilitate intercultural encounters (Mitchell & Benyon, 2018; Siczek, 2015); they all give students opportunities to engage in activities that enhance their intercultural communication skills and their understanding of the relationship between the global and the local (Flammia, Cleary, & Slattery 2010; Patterson, Carrillo, & Salinas, 2012; Sklad, Friedman, Park, & Oomen, 2016). For example, May, Wold, and Moore (2015) initiated a collaboration between engineering students at the University of Virginia in the U.S. and at the TU Dortmund University in Germany. As part of the collaboration the students engaged in interactive online role-playing simulations. At the end of the semester,

students reported that they had developed the ability to see "the relationship between cultural practices and engineering solutions more so than they could before the simulations" (p. 538). They gained confidence in their ability to demonstrate respect for other cultures and to listen to other points of view.

Mitchell and Benyon (2018) used a virtual collaboration between U.S. and South African students to enhance the Information Systems (IS) curriculum. Students engaged in one-on-one intercultural communication using email, Skype, Facebook, and other social media to get to know one another; the success of the project was assessed based on a reflection paper in which the students were required to discuss what they learned about their partner and about the IS curriculum. The students reported that they were surprised by how much they learned from their partners. Opportunities to interact with diverse others are vital to the development of students' intercultural competency. Siczek (2015) suggests that international students on campus can make valuable contributions to globalizing the curriculum by acting as "'bridges' between their home communities abroad and their local communities in the US" (p. 7).

Beyond merely getting to know diverse others, having students interact with them to address discipline-specific issues provides valuable preparation for the global workplace. Jesick, Zhu, Woo, Thompson, and Mazzurco (2014) describe the use of scenario-based and situational approaches to preparing global engineers. Based on an extensive literature review and on their interviews with practicing engineers, they developed a situational judgment test (SJT) to evaluate global engineering competency. The situational prompts developed for the test were also used in their courses to facilitate case-based conversations about typical situations in global engineering work.

Case studies are also a common teaching tool in the international business curriculum. However, as Briguglio (2007) has pointed out, many existing case studies have been written from a Western perspective. Based on her experience using case studies in a business class, she argues that other approaches are needed to help students develop the intercultural communication skills they will need for international business contexts. She recommends using existing case studies as a starting point and then having students adapt the cases from their own cultural perspective. She also suggests challenging students to work collaboratively to produce original case studies based on cultural dilemmas that they have encountered themselves and then to adapt their cases to a business context.

In an international management course, Feng (2016) used a reflective development model to increase students' cultural awareness and sensitivity. After the initial reflection stage, students were required to seek out

ways to interact with diverse others within their home environment (e.g., getting to know international students, attending local cultural events). Then students were required to write reflections describing what they did, how they felt about the experience, what they learned from it, and what they plan to do to continue improving their cultural awareness. Based on both quantitative assessment (pre- and post-surveys) and qualitative assessment (students' reflections), Feng found that the students improved their intercultural competency while remaining in their home environment.

Similar studies have been conducted in teacher education, language, and first-year writing courses (Dobrauc, 2016; Frigo, 2017; Lopes-Murphy, 2013). Sandell and Tupy (2015) used Hammer and Bennett's Intercultural Development Inventory (IDI) to measure the cultural competency of students in a teacher education program; the results of the IDI describe how individuals or groups are oriented toward other cultures. To facilitate the students' development of cultural competency, Sandell and Tupy used guest speakers, films, panel presentations, self-assessment writing activities, and interaction with partners from other cultures. As a result of these high-impact activities, the students showed "statistically significant positive gains in their orientations to cultures different from their own" (p. 378).

Although writing courses do not focus on discipline-specific skills and knowledge in the same way that upper-division courses within the disciplines do, they have the potential to play a vital role in the development of students' global awareness and sensitivity. Taking a local-then-global approach in a first-year composition course, Dobrauc (2016) sought to help her students develop global awareness while also gaining confidence in their writing skills. She used journal prompts to get students to identify ways in which global issues are part of their everyday lives. Dobrauc also used video and audio clips to help students visualize global issues in action; she even integrated global perspectives into instruction in grammar and vocabulary. As a result, her students showed strong improvements in their cultural awareness and in their development as global citizens.

Frigo (2017) has also addressed the need to help students in the writing classroom move outside their cultural comfort zones. She offers ten strategies to develop students' global competency. One example is a writing assignment that prompted students to think about where in the world they would like to travel if they had five thousand dollars to spend and to write a research essay on the destination explaining why it is a desirable place to visit. The students found this activity "both engaging and illuminating" (1. Start with a Geography Lesson section, para.3). Frigo also suggests having students read non-U.S. news sources to gain a broader perspective on world issues and challenging them to develop positions on UN missions or interventions.

All of these approaches from diverse disciplines emphasize the importance of providing students with international experience in some form or another whether by interacting with international students, collaborating with diverse others, or examining how global issues impact their everyday lives. While some of the examples focus primarily on developing global citizenship and others place a greater emphasis on preparing students for the global workplace, nearly all of them also focus on the importance of teaching global competency in the context of disciplinary topics. Such an approach has been shown to be extremely beneficial to students (Dobrauc, 2016).

Fostering Global Competency Across the Disciplines

While courses and assignments within the disciplines have proved to be effective in helping students develop the skills and abilities associated with global competency, the internationalization project described in this article took a different approach: rather than focusing on strategies for fostering global competency within a particular discipline or on creating a generic global studies course for all students, the authors have created a sequence of assignments that can be adapted by faculty members across the disciplines to add international elements to their courses. This simple and flexible approach was created to address the needs of a large number of new faculty members (over 400 in a two-year period) at the University of Central Florida. The authors believed that it was likely that a significant portion of these new colleagues might not have experience internationalizing their courses. As our project at a summer faculty development conference sponsored by UCF's Faculty Center for Teaching and Learning (FCTL), we sought to address one of the President's Five Key Goals for the University: "Provide international focus to our curricula and research programs."

The sequence of assignments was originally developed by two of the authors (Flammia and Sadri) for an interdisciplinary Honors course they taught titled: "Global Perspectives." The students enrolled in this Honors course were from a diverse range of majors (e.g., English, International Relations, Mathematics, Business Administration). The primary focus of the course was to develop students' global competency skills, particularly their understanding of the connections between the global and the local. To this end, we began the course by having a series of speakers from local branches of international organizations that address global issues (e.g., Amnesty International, the United Nations Organization). Each speaker talked

about his/her organization's mission and gave examples of local actions being taken to address global concerns. The students were then divided into small groups (3-4 students). The groups were told to select one of the organizations and to develop a local project to address that organization's global mission.

Throughout the semester, the students completed several assignments that all contributed to the completion of the major project for the course which was a local project for a global organization of their choice. In addition to the major project, the assignments included a project proposal, an interview with a subject matter expert in another culture, a peer review, and a public presentation of their final project on campus or in the community. The projects developed by the students included the creation of curriculum to teach fifth grade students about the United Nations Organization and a website for the University of Central Florida's Office of Diversity Initiatives. The course was very successful in many ways. The students produced projects that were highly valued by their clients at the various organizations. The students also shared their projects through public presentations that further disseminated their work on campus and in the community. The students reported an increased understanding of global issues and greater confidence in their own global competency. Perhaps most significantly, they left the course with a framework for global civic engagement that they will be able to apply in the future both in their careers and in their personal lives.

An Internationalization Project

Based on the success of this course, Flammia and Sadri sought to develop a series of assignments that could be used either singly or in sequence in various courses across the disciplines. The assignments were designed to help students develop the skills and knowledge associated with global competency. The specific competencies we sought to foster included these skills and abilities:

- An understanding of cultural differences
- Sensitivity to other cultures
- The ability to think critically about global issues
- Knowledge of world events and the ability to view them from an interdisciplinary perspective
- Mastery of communication technologies for collaboration
- The ability to collaborate with diverse others to manage knowledge and create shared understandings
- An understanding of how to take action locally to address a global issue
- A framework for global civic engagement

We revised the assignments used in our course and sought to make them more easily adaptable to other disciplines. First, we wrote a brief description of each assignment and created a list of learning objectives for it. Then, we offered suggestions for how the assignment might be implemented in specific disciplines. We created a total of five assignments:

- Interview with a Subject Matter Expert in Another Culture
- Internet Research Assignment
- Country Research Report
- Local Project to Address a Global Issue (Group or Individual Project)
- Public Presentation

For the purposes of this article, we are going to focus on one of the five assignments: the Interview with a Subject Matter Expert in Another Culture (Cultural Interview). We decided to focus on this assignment because it is the one that most of our colleagues chose to adapt for their courses.

The Interview Assignment

The interview assignment required students to conduct a technology-supported interview with at least one subject matter expert in another culture. In the context of this study, students were instructed to interview a person from "another culture," or in other words, from a culture they self-identified as different from their own. Individuals learn behavioral patterns and communication styles based on the unwritten norms, rules, and values of their home culture through a process of socialization (Gudykunst et al., 1996). These styles of communication can vary both across and within cultures, based on how individuals are raised and the context of their socialization (Hall, 1976). In addition to observing different cultural behaviors and communication styles, students self-selected interviewees who they identified as being from "another culture" based on additional cues such as food preparation, dress, and environmental aesthetics, for example.

The students were allowed to conduct the interviews via email, using Skype, via videoconference, or through some other computer-mediated medium. In some instances, the students conducted an interview with a subject matter expert from another culture who was currently on campus or in the community. The assignment was designed to meet these objectives:

- To develop students' interview skills
- To develop students' technology skills
- To enhance students' awareness of cultural differences

- To develop students' understanding of the practice of their discipline in other cultures
- To enable students to view their field from a broader perspective

The assignment lends itself to a variety of disciplines as students can be required to interview subject matter experts in any area. They may be required to conduct a general interview to gain a basic understanding of how a particular discipline (nursing) is practiced in another culture, or they may be required to investigate a specific aspect of a discipline, for example, elder care or neonatal nursing.

In this article, we describe how the assignment was adapted in two distinct disciplines: hospitality management and international relations. The faculty members in these two disciplines shaped the assignment to meet the goals and learning objectives for their courses; the way they did so may serve to spark ideas for other faculty of ways that they could use the assignment within their own disciplines to foster the development of students' global competency while also meeting discipline-specific learning objectives.

Cultural Interview Executive Summary for Hospitality Management

Students enrolled in a Supply and Procurement Management course in the Rosen College of Hospitality Management at UCF were assigned a cultural interview with a purchasing professional from one of the services industries (e.g., food and beverage, hotel operations, retail, etc.). While students were allowed to select any purchasing professional from the hospitality/services industries, two criteria guided their selection: (1) the professional had to be responsible for some aspect of the purchasing function (e.g., Executive Chef, Director of Food and Beverage, hotel or event procurement specialist, owner of an ethnic restaurant or grocery store); and (2) the professional had to either be from another culture or be a U.S. citizen who had worked as a purchasing agent in another country.

This assignment was designed to meet these objectives:

- Expose hospitality management students to service professionals from a culture other than their own
- Encourage intercultural communication beyond the students' comfort zone
- Build intercultural communication skills
- Promote awareness of cultural differences with regard to the hospitality industry

Given that the majority of students enrolled in the course were employed in the hospitality industry, they had access to purchasing professionals within their respective organizations.

However, in different circumstances where students are not employed in the course-related industry, the instructor may need to coordinate with professionals and organize potential interviews before disseminating the assignment. Instructors should only use this approach to help students with no connections in the industry to find suitable interviewees and not as a response to students with connections who feel uncomfortable approaching these professionals.

One of the objectives of the assignment is to create a space for guided discomfort, allowing students to confront their fears and apprehensions in approaching (1) an industry professional whom they have not yet met, and (2) a professional from a culture different from their own. It should be expected that a certain amount of hesitation might occur among students, and they should be encouraged to meet with the instructor for scaffolding techniques designed to guide them through the assignment with the ultimate goal of facing and overcoming perceived obstacles.

Prior to conducting the interviews, students were required to obtain the instructor's approval of the professional they chose to interview so that the instructor was able to confirm if the assignment criteria had been met. As students were allowed to select their own interviewee, there was some variation among the professionals chosen.

To steer the interview process in the right direction and help precipitate a conversation, students were given these potential questions for the cultural purchasing interview:

1. How long have you worked in/owned this establishment?
2. Where are you from, or in which county have you worked as a purchasing agent?
3. What are the differences in sourcing food and non-food items both here and in your home country?
4. What are the challenges in sourcing products and services in this country?
5. What are some differences in the purveyor relationships between this country and your home country?
6. Is there anything you think buyers and/or purveyors from this country should know about procuring products and services from other countries?
7. Do you have any purchasing advice for me?
8. Can you offer any advice as to how I might become more knowledgeable about your culture?

Upon completion of the interviews, students were instructed to write a two-page executive summary based on the interview; they were also required to write a reflection on the experience of conducting the

interview. In order to gain a maximum benefit for the class as a whole from this individual assignment, small group discussions were organized during face-to-face class time, followed by a short classroom discussion designed to summarize both the contextual learning objectives and the self-reflection exercise, allowing students to share their experiences with the entire class.

Results

The qualitative data were collected from the cultural interview assignments in Supply and Procurement Management courses from Fall 2015 to Fall 2016, with a total of 55 students participating, resulting in 34 females (62%) and 21 males (38%), consistent with the college enrollment skewed toward females at 75.3% and males at 24.7%, as reported in 2016. As no quantitative data were collected, the demographics of the students cannot be reported; however, relative to the 2016 report referenced above, it can be inferred that the data collected were similarly representative of the college demographics: 64.9% White; 19% Hispanic/Latino; 6.9% Black/African American; 3.2% Multi-Racial; 3% Asian; .2% American Indian/Alaskan Native; .1% Native Hawaiian/Pacific Islander (UCF Demographics, 2016).

While the contextual basis of the course each semester was supply and procurement management, for the purpose of this study, only the reflection component as it related to intercultural communication and global competencies was included in the reporting of the results. Students disclosed a wide range of thoughts and feelings about the cultural interview assignment, including the more challenging aspects, such as, "This assignment was hard," "I was uncomfortable," "I didn't like it," "This was a very different assignment than what I am used to," and, "[The assignment] challenged me." Numerous students reported a sense of initial discomfort with the assignment, which resulted in a stimulus either to face their reluctance and overcome it (and learn) or to conduct the interview anyway with less commitment and potentially to learn less. A consistent finding revealed that although the assignment was "different," regardless of their levels of commitment, students shared that the cultural interview "challenged me," and, "It made me think." One student summed up her experience by saying, "I had to step out of my comfort zone," and, "I learned so much more than I thought I would."

Finally, one of the more introspective students stated, "I didn't know as much as I thought I did about other cultures," presenting perhaps the most significant finding of the study and highlighting the paradoxical challenges associated with it. More specifically, for those students who were reluctant to complete the assignment either because they thought they were already familiar with other cultures or because they believed they would not gain from completing it, this finding revealed that perhaps the students did not know what they did not know. As is often common with students well-acquainted with their industry of study, they arrive in class with a sense of competence beyond what they might actually possess.

Instructions in the assignment included questions about the interviewees' home country and cultural procurement practices, thereby referencing cultures and business practices outside the United States, from the Caribbean Nations, South America, Europe, and Africa, for example. While these cultures are represented in the United States to a certain degree, as it relates to their procurement and intercultural communication practices in business, there were vast differences for students to explore. The benefit of the cultural interview assignment in this instance was that it allowed students to complete the interview based on their current level of cultural understanding while also challenging them to move beyond their existing level of cultural competency and to develop an understanding of culture in the course context. For example, those students very new to intercultural conversations could focus on the purchasing information attained while still gaining initial intercultural conversational experience. In comparison, those students who had achieved a certain degree of intercultural competence (or thought they had) could explore their level of competencies in both acquiring purchasing information and navigating through an intercultural conversation.

In addition to analyzing students' general thoughts on the cultural interview assignment, a more detailed word frequency analysis was conducted on the transcripts of the reflection component (see Table 1). From Table 1, it can be inferred that the assignment was immersive, experiential, different from typical assignments within the college, interpersonal, cultural, enjoyable, interesting, and finally, one that offered an innovative path toward intercultural understanding. A word cloud representation of the totality of the frequencies of word data collected, inclusive of the purchasing course context, revealed an overall positive assessment by the students based on their perceptions of the assignment (see Figure 1). Word clouds are useful for educational research in two ways: (1) as a highlighting tool for a quick preliminary analysis of the word data, and/or (2) to confirm and validate the interpretation of findings (McNaught & Lam, 2010). In this study the word cloud depiction of the cultural interview reflection (Figure 1) was valuable to reveal high-frequency word data after the top 20 listed in Table 1, thus providing a more holistic view of students' responses. Additional words in the word cloud not revealed in the top 20-word list—such as "Halal," "travel," "personal," "meet," "foreign,"

Table 1
Top 20 Words Related to the Cultural Interview Assignment Reflection

Position	Word
1	interview
2	more
3	different
4	like
5	business
6	people
7	experience
8	countries
9	industry
10	learn
11	think
12	time
13	culture
14	thought
15	feel
16	hospitality
17	interesting
18	myself
19	enjoyed
20	understand

Figure 1
Word Cloud depiction of cultural interview reflection results

"future," and "open"—convey a candid and more forthcoming impression of students' feelings about the assignment and its benefits. In totality, the overall impression of the word cloud depicts a positive experience based on purposeful market-driven learning in the hospitality management context. Interweaving these contextual findings with the purchasing aspects of the interview, the data revealed that the students collectively reflected on a rich learning experience, combining cultural competencies with a market-driven teaching perspective.

The final step in the cultural interview assignment for the hospitality supply and procurement management course was a larger in-class discussion. Although data were not collected during this stage of the assignment, instructor observations detected more in-depth conversations around intercultural communication than previous in-class lessons. Examples illustrating student engagement in the conversation included demonstrating a richer vocabulary and increased comfort in describing a dialogue with someone from another culture, explaining the process for entering a conversation with an unknown person in an unfamiliar culture, satisfaction in having attempted and successfully engaged with a person from a foreign culture, and a willingness to make more attempts either by reaching out to persons from other cultures within the local area or by traveling to foreign countries for the purpose of exploring other cultures.

Cultural Interview Assignment for International Relations Majors

Students in an International Organization (IO) class in the Political Science Department at UCF were assigned a cultural interview with a foreign diplomat from one of the international organizations where the U.S. is a member-state. The students were instructed to focus on a public (e.g., the International Monetary Fund), not private (e.g., the Red Cross), organization in which the U.S. is a member. The students were also free to choose either a regional (e.g., the Organization of American States or OAS) or global (e.g., the United Nations) international organization. Last but not least, they were free to focus on a security, political, economic, social, or humanitarian topic under discussion in the organization.

The instructor allowed the students to choose any diplomat from these organizations. However, four criteria narrowed their choice of an interviewee:

(1) The diplomat must have at least 5 years of experience in the field;

(2) The diplomat must represent other countries (not the U.S.);

(3) The diplomat must have been raised outside the U.S.; and

(4) The diplomat should not have had an American K-12 education.

This assignment was designed to meet these academic objectives:

- Connect international relations majors to diplomats from other countries and cultures
- Promote intercultural communication beyond the students' U.S.-centered environment
- Present an opportunity to be mindful of cultural differences
- Foster the development of students' oral and written intercultural communication skills

The instructor allowed students to find these foreign diplomats on their own. However, he provided guidance for students who did not know how to locate someone to interview by giving examples. Moreover, the instructor was available to any student who experienced general or specific difficulty in completing the assignment. Before conducting the interviews, the students consulted the instructor about their choices to make sure that the selection criteria were met.

Finally, the instructor provided students with a list of possible and appropriate questions for this intercultural interview assignment:

1. Where were you born and raised?
2. What are the ethnic backgrounds of your parents?
3. Where did you complete your K-12 education?
4. What foreign languages do you speak?
5. How did you learn English?
6. Where did you complete your college education?
7. How many years of experience do you have in diplomacy?
8. How do you compare the American and your own approach to international crises?
9. What are the methodological differences between the U.S. and your diplomats for handling crises?
10. What are the typical obstacles for coming to an international agreement?
11. Do you have any advice for me in preparing for a career in diplomacy?
12. What should I read or experience to become more knowledgeable about your culture?

Beyond these basic questions, students were free to ask any questions after consulting with the instructor in order to make sure that their questions were not politically or culturally insulting to the interviewee.

As these questions indicate, the assignment instructions required students to learn about the interviewee's country of origin and cultural background. The assignment addressed the cultural dimension in addition to examining political and diplomatic practices outside the United States. While some of the cultures the students learned about are also represented in the U.S. to a certain degree, as it relates to their handling of diplomatic communication and intercultural practices in diplomatic and professional environments, there were a variety of differences for students to explore.

After completing the interview process, students were instructed to write a one-page evaluation summary based on the answers to their questions. They were also asked to include a reflection section about their experience.

Following the completion of the assignment, the instructor organized a series of classroom group discussions to summarize the learning objectives, as well as the self-reflection exercise, to provide students the opportunity to share their experiences with the rest of the class.

Results

During the 2015-2016 academic year, the IO class was taught twice to a total of 99 students, of which 66 were female (about 67%) and 34 were male (about 33%). No real quantitative data was collected regarding the students. The only quantitative data from the class records related to the gender division. This type of gender division is typical of a UCF political science course. Moreover, the majority of political science courses show an ethnic diversity rate close to the figures that UCF statistics indicate (UCF Demographics, 2016). Qualitative data were collected after the interview assignment. The results described are from the reflection component of students' evaluation reports that were directly related to their intercultural communications and global competencies. To start with, about 10% of the students were not able to complete the assignment for a variety of reasons, including a lack of response from the interviewee and the student's failure to complete the assignment on time.

In general, the rest of the students' responses covered a wide range of experiences from those who found the interview assignment to be almost too difficult to complete to those who found it to be very manageable. Those students who complained about the assignment (about 22%) used statements such as, "The cultural interview is simply too hard," "I am not comfortable with it," or "I do not like it."

A number of students (about 39%) reported that they faced challenges as they conducted the interview; however, they were ultimately able to complete the assignment and to learn from their experience. These students used phrases such as the following:

- "The assignment made me think."
- "It challenged me."
- "The interview assignment was different from what I am good at or used to, but I learned how to complete it."

The rest of the students (about 29%) were comfortable in choosing foreign diplomats to interview, adding to the list of basic interview questions provided by the instructor, and conducting the interview itself. In fact, a couple of students made such meaningful connections with the diplomats they interviewed that they were strongly encouraged to apply for internship positions in the diplomats' offices before or after graduation.

Yet another result of this initial study relates to a group of very thoughtful students who used some of the following expressions, phrases, and/or statements:

- "I didn't know much about other cultures, but I learned a lot."
- "I was wrong about what I thought that I knew about that culture.";
- "It is certainly enlightening to listen to someone else's perspective about what we think that we know."
- "We take some ideas and beliefs for granted as [if] they are facts, not thinking that not everybody thinks that way."

From an academic perspective, one significant finding relates to the last group of students. Not only did they accomplish the task despite challenges, but they also learned a valuable lesson by becoming "mindful" (or more mindful) of other perspectives, views, and interpretations of the same facts, figures, and opinions.

Another observation indicates that some students resisted completing the assignment based on the belief that they were already familiar with, or knew enough about, other cultures to get by. Based on their own cost/benefit approach, others supposed that they would not benefit much after completing the interview. This pattern of behavior uncovered a more significant result that perhaps some of the students were unaware of their own lack of intercultural competence and failed to see a need to develop intercultural communication skills.

Thus, one could make the argument that the main advantage of the cultural interview assignment was that it

challenged students to move beyond their current level of understanding and to interact with diverse others. That is certainly a significant finding, not only from an academic perspective, but also from a practical point of view, as such individuals will learn to function better in a professional environment based on the experience.

Conclusion

Although the interview assignment was adapted for use in two different disciplines, its basic components remained the same. Students were required to conduct interviews with subject matter experts who were members of other cultures. In both adaptations, the students were required to step outside their comfort zones and were given an opportunity to develop a broader understanding of their field of study. They were also required to communicate with someone outside their own culture. Unlike many other approaches to developing students' global competency, this assignment is grounded in a particular discipline and is integrated into an existing course. The simplicity of the assignment makes it easily adaptable across the disciplines.

The findings from the two adaptations of the assignment have several key similarities. In both instances, the students displayed an initial reluctance to the assignment, particularly to the challenge of identifying a foreign-born professional to interview. However, despite initial resistance to the assignment, the majority of the students went on to complete the assignment successfully. As a result of completing the assignment, the students reported learning outcomes related to their cultural competence and to their discipline-specific knowledge. Overall, the students found the experience to be a positive one. They gained confidence as a result of conducting the interview and also developed a broader perspective on their chosen profession. Finally, many students reflected on the fact that until they were challenged by the assignment, they thought their level of cultural competence was much greater than it actually was.

Gaining cultural awareness is an important first step in becoming a culturally competent individual. Helping students develop a sense of their own lack of intercultural knowledge is a valuable part of helping them become globally competent individuals. Denial of cultural differences or the minimization of them are earlier stages in Bennett's Model of Cultural Competence (Bennett, 2013). Assignments like the one described in this article can help move students along a continuum from minimization or mere acceptance of cultural differences to adaptation to them and finally to integration of the differences and the development of a multicultural view of one's self.

The findings presented in this article are limited in that they are based on pilot testing in only two disciplines. However, the positive nature of the findings do indicate that it would be worthwhile to pilot test this assignment and the other assignments in the internationalization sequence in other disciplines. The authors plan to conduct additional pilot tests and to encourage colleagues across the disciplines to do so as well. We also recommend that future studies should incorporate both quantitative and qualitative data so that the results can be disaggregated according to student outcomes by cultural composition. Utilizing this approach longitudinally, trends can be detected to ensure students are indeed interacting with someone from a dissimilar culture, and outcomes can be better monitored to increase reliability.

The interview assignment is a valuable tool for faculty who wish to help their students develop their global competency whether their primary motivation is to help students become more competitive in the job market or to foster students' development as engaged global citizens. As shown by the findings of this study, the assignment has the potential to do both simultaneously. Undeniably, students in fields like hospitality management and international relations will be more likely to succeed in their careers if they are culturally competent. However, the development of an integrated level of cultural competency will also influence the students' worldviews and their sense of their own place in our global society.

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Appendix

Cultural Interview Executive Summary

<u>**PURPOSE:**</u>
The purpose of this assignment is to improve the student's understanding and awareness of cultural differences with regard to the hospitality field, and particularly to purchasing/procurement.

<u>**INSTRUCTIONS:**</u>
The student will organize a 10-15-minute interview with a hospitality professional from another country whose job function it is to purchase goods and/or services for his/her respective establishment. The hospitality professional may come from ANY segment of the hospitality/services industries, but MUST be responsible for some aspect of the purchasing function (i.e. Executive Chef, Director of F&B, hotel or event procurement, ethnic restaurant, ethnic grocery store, etc.). Also, this person MUST originate from a country other than the USA.
Possible questions for the interview might include:
1. How long have you worked in/owned this establishment?
2. Where are you from, or in which county have you worked as a purchasing agent?
3. What are the differences in sourcing food and non-food items both here and in your home country?
4. What are the challenges in sourcing products and services in this country?
5. What are some differences in the purveyor relationships between this country and your home country?
6. Is there anything you think buyers and/or purveyors from this country should know about procuring products and services from other countries?
7. Do you have any purchasing advice for me?
8. Can you offer any advice as to how I might become more knowledgeable about your culture?

<u>**DELIVERABLE:**</u>
The student will write a 2-page executive summary based on the outcome of the above questions. In addition, the student will include a reflection component describing what he/she learned about him/herself during the interview. Please include the interviewee's name and contact information in the summary.

International Organization Class Cultural Interview

OBJECTIVE:
The objective of this assignment is to advance students' understanding and mindfulness of cultural differences for political communication, diplomacy, discussions, and negotiation.

INSTRUCTIONS:
Each student is required to conduct a 15-minute interview with an international (not American) diplomat or government official from another country whose career is involved with diplomacy, especially at one of the public international organizations. Please notice that the staff of the private international organizations do not qualify for this assignment. The diplomat interviewee may come from any level of public diplomacy. However, the four following criteria narrow the choice of an interviewee:

(1) The diplomat must have at least 5 years of experience in the field;
(2) The diplomat must represent other countries (not the U.S.);
(3) The diplomat must have been raised outside the U.S.; and
(4) The diplomat should not have had an American K-12 education.

Possible questions for the interview might include:

1. Where were you born and raised?
2. What are the ethnic backgrounds of your parents?
3. Where did you complete your K-12 education?
4. What foreign languages do you speak?
5. How did you learn English?
6. Where did you complete your college education?
7. How many years of experience do you have in diplomacy?
8. How do you compare the American and your own approach to international crises?
9. What are the methodological differences between the U.S. and your diplomats for handling crises?
10. What are the typical obstacles for coming to an international agreement?
11. Do you have any advice for me in preparing for a career in diplomacy?
12. What should I read or experience to become more knowledgeable about your culture?

Beyond these questions, students were free to ask other questions after consulting with the instructor to make sure that their questions were not politically or culturally insulting to the interviewee.

The students are free to find foreign diplomats on their own. However, the instructor provides guidance for students who did not know how to locate someone to interview by giving examples. Moreover, the instructor is available to any student who experienced general or specific difficulty in completing the assignment. Before conducting the interviews, the students should consult with the instructor about their choices to make sure that the selection criteria were met.

DELIVERABLE:
Following the interview, students are to write a one-page evaluation summary based on the answers to their questions. They were also expected to include a reflection section about their experience.

Moreover, the instructor organizes a series of classroom group discussions to summarize the learning objectives as well as the self-reflection exercise to provide students the opportunity to share their experiences with the rest of the class.

Developing Cosmopolitan Competencies in Sustainability Professionals

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Sustainability professionals need cosmopolitan competencies to be successful when working on environmental, social, and governance issues that span cultural and national boundaries. Working professionals often struggle building these competencies because they have limited time for international travel and limited access to international peers. Short-term (10 day) and highly curated educational travel programs, combined with pre- and post-trip study, provide powerful learning experiences that can overcome these obstacles. This paper does three things: 1) defines and justifies cosmopolitan competencies that are useful to sustainability professionals, 2) describes a pedagogy to teach these competencies to working professionals, and 3) evaluates whether intended learning outcomes were achieved. A quantitative survey instrument was completed before and after international education programs to China and India. The pre-post differences were statistically significant, suggesting the pedagogy has impact. Qualitative interviews supplement and help interpret the quantitative data.

Sustainability professionals need cosmopolitan competencies to be successful when working on environmental, social, and governance issues that span cultural and national boundaries. In particular, the sustainable development challenges of the next few decades—a rising global middle class, changing climate, global supply chains, human migration, water stress, spread of infectious disease, and so on—demand a global perspective and coordination by international experts (Sachs, 2015).

This paper describes and evaluates a method for teaching and learning cosmopolitanism competencies that are important for career development and job performance in this context, especially for graduate students and sustainability professionals that are time constrained and not able to participate in traditional, semester-long study abroad programs. Working professionals often struggle building these competencies because they have limited time for international travel and limited access to international peers. The pedagogy we describe below was developed with these goals and constraints in mind.

This paper is organized as follows: the first section below describes the literature justifying and defining cosmopolitan competencies for sustainability professionals. The second section introduces a specific pedagogy that is designed to build those competencies. The third section describes a method for assessing learning outcomes resulting from an application of that pedagogy. The fourth and final section discusses the conclusions and limitations of our study, as well as recommendations for future work.

Literature Review

Sustainability professionals need cosmopolitan competencies to be successful because environmental, social, and governance challenges span cultural and national boundaries and require collaborating with international peers (e.g., Barth, Godemann, Rieckmann, & Stoltenberg, 2007; Glasser & Hirsh, 2016; Wiek et al., 2015). Careers related to sustainability are relatively new and rapidly evolving, so many working professionals are seeking professional development opportunities to gain cosmopolitan (and other) competencies (Leal Filho, 2011; UNESCO, 2014; Wals, 2014).

Consensus is evolving as to what cosmopolitanism competencies are most important. Recommendations include global citizenship (Davies, 2006; Morais & Ogden, 2011; Tawil, 2013), world-mindedness (Carano, 2010), intercultural competence (Fantini, Arias-Galicia, & Guay, 2001), global gaze (Marshall, 2005), environmental citizenship (Tarrant & Lyons, 2012), cosmopolitan perception (van Dam-Mieras, Lansu, Rieckmann, & Michelsen, 2008), situated cosmopolitanism (Healy, 2011), and cross-cultural empathy (Tarrant, 2010; Wiek et al., 2016).

Based on this literature, we concluded that sustainability professionals need at least four related but somewhat distinct cosmopolitan competencies. Literature used to define and defend each competency is listed in Table 1:

1. Cosmopolitan Identity: The ability to transcend one's own local and national identities and institutional affiliations and be appreciative of, and responsive to, other societies, cultures, markets, and governance institutions.
2. Cosmopolitan Professional Skills: The capacity to travel and work on challenges based in other communities, nations, and systems outside of one's own locale.
3. Global Systems Perspective: Recognition that sustainability challenges are teleconnected and spatially distributed across the planet. Understanding how local challenges and

Table 1
Cosmopolitan Competencies for Sustainability Professionals

Competency	Questions Used in Assessment (Literature Where Discussed)
Cosmopolitan Identity (CI)	1. Value the diversity of cultures.(Chickering & Braskamp, 2009; Tarrant et al., 2011). 2. Feel respect and concern for the rights and conditions of all people, globally (Marshall, 2005; Davis, Evans, & Reid, 2005). 3. Feel connected to global issues by your daily life and routine (Westheimer & Kahne, 2004; Merrill, Braskamp, & Braskamp, 2012).
Cosmopolitan Professional Skills (CPS)	1. Possess cultural competencies needed to interact professionally with sustainability professionals in other countries (Barth et al., 2007). 2. Experience with international settings relevant to your profession or career (Wiek et al., 2016). 3. Adeptly arrange your own international travel logistics (Wiek et al., 2016). 4. Mediate interactions between people of different cultures by helping them understand each other's values and practices (Jorgenson & Shultz, 2012).
Global Systems Perspective (GSP)	1. Describe global issues, trends, and conditions related to sustainable development (Morais & Ogden, 2011; Tawil, 2013). 2. Map connections between global issues and sustainability challenges in your own country (Chickering & Braskamp, 2009). 3. Map connections between global issues and sustainability challenges in another country (Su, Bullivant, & Holt, 2013).
Global Community of Practice: (GCP)	1. Access information relevant to your professional work that is published by global organizations, found on global platforms, provided by global communities of practice, or available through other global knowledge networks (Tawil, 2013). 2. Describe key global institutions with missions to impact sustainable development (i.e., United Nations, international treaties, World Bank, commodity roundtables) (Davies, 2006). 3. Access a network of global sustainability colleagues with whom you can consult on professional issues (Jorgenson & Shultz, 2012; Su et al., 2013).

solutions are interconnected to, and bounded by, global systems.

4. Global Community of Practice: The ability to access, use, share, and develop the knowledge, tools, and skills of global sustainability professionals and peers facing similar problems but distributed in vastly differing local, national, or regional contexts.

Methods

This section first reviews the theory behind our pedagogy. It then describes how we implemented this pedagogy. Finally, it describes the measures and methods to assess learning outcomes.

Pedagogy Theory

International travel, by itself, promotes cosmopolitan competencies. Wynveen, Kyle, and Tarrant (2012) demonstrated that short-term educational travel programs foster the learning outcomes related to cosmopolitanism. Other documented outcomes of travel include intercultural awareness (e.g., van't Klooster, van Wijk, & van Rekom, 2008), global citizenship (Tarrant, Rubin, &

Stoner, 2014), and responsible leadership (Pless, Maak, & Stahl 2011). Significant learning occurs when students experience what Hottola (2004) calls "culture confusion": the mental disorientation resulting from experiencing differences in values, behavior, political perceptions, and ecology. Cultural bubbles can prevent this from happening. Bubbles occur when participants travel in large groups and/or can otherwise restrict their social interaction to familiar social networks (Pizam, Jafari, & Milman, 1991). To break the bubble, our projects force students to interact with specific people and places in the locations we visit.

Research also shows that students' learning outcomes improve if they study cultural competencies and cultural differences in advance of the trip (Kayes, Kayes, & Yamazaki, 2005; van't Klooster et al., 2008). We therefore require several self-paced studies of this type. Research also shows that reflection during and after the site visit amplifies and reinforces lessons learned during travel (Conceio & Skibba, 2008). So, we also design situations and assignments requiring reflection.

We also employ a project-based learning pedagogy. The project-based learning literature suggests that authentic problems with real clients motivate student interest and commitment (O'Brien & Sarkis, 2014), hence we work with partners engaged in

authentic and ongoing projects. New knowledge, understanding, and empathy are generated by coming into contact with, listening to, observing, and creating experiences with local people and organizations (Kayes et al., 2005; Kolb & Kolb, 2009; Paige, Fry, Stallman, Josić, & Jon, 2009). Hence, we assign projects that require students to interact with and interview local business, academic, and government leaders.

We take students to eight countries: Brazil, Croatia, Morocco, Turkey, India, Indonesia, China, and South Africa. These countries were selected because they are among the most rapidly developing in the world, will soon have economic and environmental impacts larger than the US and European Union combined, and thus offer powerful learning experiences for sustainability professionals (Kaplan, 2017; Sachs, 2015).

Pedagogy Application

This section describes what we did in the "classroom," but it first describes the students. The students are professionally oriented and are typically not on track to doctoral degrees or academic careers. Rather, most students seek credentials, competencies, and connections (networks) they can bring to bear in short order to improve their job performance and advance and/or change their careers. The students are diverse: ranging in age from 25 to 65, evenly divided between male and female, equally employed by business, government, or civil society organizations, and living throughout the US. Some students have deep international work experience while others have never held a passport or been on an airplane. The obvious upside of working with these students is their professionalism, discipline, and depth of experience that they bring to the classroom and share with peers.

With few exceptions, the global study experience occurs as part of a course taken by students enrolled in a professional master's program. Students pursuing that degree are required to take a "global issues" course, which counts for three credits out of a total of thirty required for graduation. That course is offered several times a year in different locations by different faculty; most coursework occurs entirely online except for a 10-day onsite study tour. The course has evolved as faculty learned from taking approximately 300 sustainability professionals abroad over an almost 10 year period. The current syllabus for the course emphasizing six interconnected tasks/projects/assignments:

1. Students complete a cultural competency learning module that reviews abstract principles of cultural competency (i.e., Myers, 2014) as well as country-specific readings and videos. Before departure they summarize impressions and expectations in a reflective essay. During the onsite study tour, debrief sessions are used to discuss impressions, lessons, and frustrations associated with comprehending and navigating cultural differences. Students conclude the semester with a short essay describing cultural competency lessons learned.

2. Students work before departure to familiarize themselves with the country and context. Faculty identify specific topics and direct students to useful literature such as World Bank country assessments, the CIA Factbook, and country-specific reports. Contextual factors include the following topics:
   - Demographics: What are major demographic trends such as population, age, wealth, urbanization, education, health, and inequality?
   - Environment: What are major environmental stressors such as water, climate, pollution, food/agriculture, biodiversity, and land use?
   - Market: What are the major imports, exports, trading partners, dependencies, vulnerabilities, etc.? What is the role of labor unions, sustainability certification, and green capital?
   - Governance: What are the governance structure (e.g., national, state, local)? What are the roles of civil society, property rights, corruption, and policies on pollution and environment?

3. Students conduct research about a project identified by the faculty that will be the focus of the country visit. They do this by reading project reports written by key stakeholders (i.e., annual reports, self-assessments, reports to funders) and conducting email or phone interviews with experts and stakeholders. Students organize this material using a framework/guide designed to help make sense of complex sustainability situations, something akin to a SWOT analysis but focusing on Stakeholders, Strategies, System attributes, and Outcomes. A *stakeholder* is an actor (e.g., person, organization, country) that has a stake in the outcome. Some stakeholders might be involved in shaping the outcomes, others might be trying to get involved but are ignored, and some will be oblivious of the situation but should be involved. Students examine the relevant interests and resources of key stakeholders. *Strategies* are the things that stakeholders do to influence outcomes and achieve their goals. Strategies are informed by theories of change: they are the levers to pull,

the means to intervene, and the tools to tinker with system functions. Students identify and explain key strategies. Mapping the *system* attributes encourages systems thinking that helps examine the bigger picture where larger risks and opportunities may exist (i.e., see the forest for the trees). System mapping helps drill down into internal and external factors, as well as the relationships between them, sources, sinks, and feedback loops. Systems thinking and systems mapping are used to help understand how things interact and where influence might be leveraged. *Outcomes* are where the proverbial rubber meets the road. The ability to effectively measure and manage desired outcomes is a critical tool for collaboration because stakeholders need to agree on what they are trying to accomplish and how to measure success and failure so that they can hold themselves accountable and have greater impact. Students identify the outcomes stakeholders say they are measuring and/or want to achieve.

4. Students study at the international location for approximately 10 days. During this time students meet with local professionals, learn about the host organization, visit project sites, interview stakeholders, and collect data. They also meet local experts on matters of sustainability and engage in cultural tourism activities. Faculty work outside of, and in advance of, the graduate course to build relationships with host organizations and professionals in the destination country and lay the groundwork for the study tour and course work.

5. Students return home and use the balance of the semester to analyze the situation and develop a stylized, descriptive professional facing essay describing what they learned. We have experimented with a number of formats for the major student project, including consulting reports where students "parachute in" as experts and offer recommendations. Given the time constraints the students face, the expertise required to provide meaningful recommendations, and the need to match expectations of both the students and local partners, we moved away from a consultancy project requiring recommendations to a stylized essay summarizing observations and lessons that might be of interest to other sustainability professionals. Students write an essay/blog/report for an audience of peers interested in learning lessons about projects and professionals from other parts of the world. Their reports typically contain these four sections:

- Problem statement: What will this essay tell us, who cares, and why should they care?
- Context: Situate the case in the larger demographic, environmental, market, and governance trends affecting sustainability in the Anthropocene
- Specifics:. Tell a story about how stakeholders use strategies to influence system outcomes (i.e. from the sense making exercise described above).
- Lessons: Describe major lessons that sustainability professionals can learn from this case/project and explain why these lessons matter.

Assessment of Learning Outcomes

We examined the impacts of our pedagogy on 37 graduate students: eight went to China and the balance to India. Both quantitative and qualitative assessments of learning outcomes were collected. Items for a quantitative survey were developed using the items in Table 1 (the items were turned into questions by prefacing them with, "How well do you…," or, "How much do you…"). The survey was administered to students online. Participants were sent the pre-trip survey several months before international travel and the post-trip survey about one month after returning home. Six of the China group and 27 of the India group completed both the pre- and post-surveys.

Factor Analysis was used to assess whether the 13 items could be collapsed into four major learning outcomes. The four indicators of cosmopolitan competency seem robust, orthogonal, and cohesive. Varimax rotation of Factor Analysis results show four distinct factors, and Cronbach Alpha statistics ranged from 0.74 to 0.85, indicating moderate reliability (Table 2). The four factors accounted for 34%, 20%, 10%, and 8% of the variance. The weakest index, based on these findings, is Cosmopolitan Identity. It accounted for the least amount of variance, and it appears that one item (CI-3; Table 2) aligned more with Cosmopolitan Professional Skills. We decided to maintain the deductive grouping for this study. Hence, the multiple items under each major learning outcome were summed and averaged to create one measure for each major learning outcome.

Paired t-tests were conducted to compare pre- and post- outcomes. To supplement the quantitative survey, the lead author traveled with the larger group to India and interviewed five students during the on-site experience. Five other students participated in email exchanges with the author after returning from the trip. The results of the interviews were transcribed and then axial coded first into themes relevant to the four

Table 2
Factor Analysis of Learning Outcomes

Factor	Cronbach Alpha	Survey Item*	% Variance and Factor Loadings			
			34%	20%	10%	8%
Cosmopolitan Identity		CI-1	.26	-.04	.09	.86
	0.74	CI-2	.18	.33	.04	.64
		CI-3	.56	.26	.13	.52
Cosmopolitan Professional Skills		CPS-1	.68	-.08	.05	.39
	0.79	CPS-2	.71	-.17	.31	.28
		CPS-3	.73	.09	-.08	.23
		CPS-4	.87	.26	-.04	-.22
Global Systems Perspective		GSP-1	-.01	.37	.78	.07
	0.85	GSP-2	.27	.34	.76	-.06
		GSP-3	-.05	.09	.93	.14
Global Community of Practice		GCP-1	-.07	.74	.27	.02
	0.82	GCP-2	.08	.82	.31	.21
		GCP-3	.17	.81	.10	.04

* Survey wording taken from the learning outcomes in Table 1

Table 3
Pre-Post Assessment of Cosmopolitan Learning Outcomes

Competency	Pre-Test Mean	Post-Test Mean	Mean Difference	t-test	n	p
Cosmopolitan Identity	4.22	4.47	.25	2.6	32	.013
Professional Skills	3.23	3.95	.71	4.7	32	.000
Global System	3.18	3.83	.65	4.7	32	.000
Community of Practice	2.92	3.81	.89	5.5	32	.000

cosmopolitan competencies described above and then within subthemes that emerged for each of those topics. The following interview guide was used (revised to post-tense for the post-trip interviews):

- What are your hopes and dreams for this trip?
- What are you learning about India and about traveling logistics?
- What are you learning about your career and profession?
- What are you learning about yourself and your role in the world?

Discussion of Results

All t-tests of learning outcomes were significant, suggesting that the educational program enhanced each of the four cosmopolitan competencies (Table 3). The least improved outcome was cosmopolitan identity, which might be because students began the course with a high feeling of cosmopolitan identity (4.2 out of 5) and therefore had less room for improvement. The other cosmopolitan competencies improved, but because they all remain below four (out of 5), suggesting we can improve our pedagogy. The China and India groups were compared, and it

appears that the India experience was more impactful, but the statistics were inconclusive.

The interviews produced wide ranging comments, so what follows focuses only on comments specific to the four cosmopolitan competencies that are the focus of this paper. Illustrative quotes are provided in Table 4.

Cosmopolitan Identity is defined from the literature as transcending one's own local, national, and institutional affiliated identities and being aware and appreciative of other societies, cultures, markets, and governance institutions. The quantitative survey showed only a small, barely significant change, but the interviews suggest the impact on students' identities was profound. Students said that they gained a broader perspective on who they are personally and professionally and that they developed a sense of responsibility to something bigger, something global.

Cosmopolitan Professional Skills are defined from the literature as the ability to travel and work on challenges and collaborate with professionals based in other communities, nations, and systems outside of one's own locale. Students mentioned gaining many specific lessons pertinent to their professional interests, only a few are reviewed below. Importantly, students spoke about a new sense of humility, realizing that they

Table 4
Quotes from Interviews

Competency	Illustrative Quotes
Cosmopolitan Identity	- The trip to India provided a lens to re-examine my professional role. I'm rethinking what I do and why. - Life feels profoundly different here in the United States … the trip changed who I am. - I am learning to feel more responsible. - People told me that the trip would be an eye-opening experience, but I found it to be more heart opening than anything else.
Cosmopolitan Professional Skills	- I am learning a lot … about how to engage communities of different means and needs, especially when the professionals come from such dramatically different cultural backgrounds. - I was worried about traveling, but now I know I can do it. - I'm increasingly [humble and] aware I don't know what is right or wrong. It is so hard for us to judge others.
Global Systems Perspective	- The global experience … [will help] me to frame the impact of local actions on the global scale of development. - I … realize how all countries and people are connected in the task of global sustainability
Global Community of Practice	- I was amazed at the resources available on World Bank and other sites that could help us prepare for working here … - I want to come back as an intern and work for them. - The …[program] allows networking with professionals in the country.

needed to better respect others, not to parachute in with outside expertise, and not to be blinded by their own pre-conceptions and ways of problem solving. Several of the students reported a new sense of comfort with being able to travel and work internationally.

Global Systems Perspective is defined from the literature as the ability to recognize how sustainability challenges are teleconnected and spatially distributed across the planet and thus how challenges and solutions to local situations are interconnected to and bounded by global systems. Several students mentioned this topic explicitly. Some students also spoke about becoming aware of the similarities among people despite differences in culture and place.

Global Community of Practice is defined from the literature as access and use of global knowledge, best practices, and networks. Students described being impressed by the people and organizations they worked with but did not say much specific about how they intended to use these networks of people and knowledge.

Conclusion

Sustainability practices are rapidly evolving, and professionals are looking for career development opportunities. Higher education programs are responding. Toward this end, we developed and tested a pedagogy to promote cosmopolitan (and other) competencies sustainability professionals need to be successful when working on environmental, social, and governance issues that span cultural and national boundaries. Importantly, our pedagogy targets working professionals who have limited time for education programs because of work and family obligations.

Results of the pre-post evaluation indicate that our pedagogy works. Short-term (10 day) and highly curated educational travel programs, combined with pre- and post-trip study, provide powerful learning experiences. Students reported having greater cosmopolitan competencies after the completing the program. Qualitative interviews suggest that some of these impacts are profound. Students report gaining new perspectives on life and career as well as skills that make them more effective at their jobs and better equipped to engage in global projects. Importantly, the passion evidenced in these interviews suggest students not only gained competencies but were inspired by the experience and gained the confidence to engage global sustainability challenges.

Our findings are limited because we only assessed student perceptions of their learning outcomes rather than direct assessment of learning through tests of knowledge

or practice. We were also unable to disentangle the specific contribution of the various parts of the pedagogy (i.e., desk research versus onsite experience) and whether learning outcomes depend upon country, faculty, project topics, and other factors. Future research is needed to better understand how different learning activities and different locations can produce more effective outcomes for educating, inspiring, and empowering cosmopolitan sustainability professionals.

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Less is More: Use of Video to Address the Problem of Teacher Immediacy and Presence in Online Courses

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Online courses are becoming more common at institutions of higher education, yet teaching online creates many challenges, including how to foster instructor immediacy in the online learning environment. Student feedback on audio and video teaching techniques were collected in two undergraduate online classes. Students thought that using video in multiple ways (weekly announcements and assignment feedback) provided increased immediacy and motivation for online students in two Communication courses: Mass Media and Society and Communication Theory. Ultimately, instructors can make a positive difference in perceived instructor immediacy and presence with small changes through general class directed videos and short weekly video announcements (roughly 3 minutes in length) periodically throughout the semester. Use of short videos for feedback as opposed to longer lecture-based videos can be a useful instructional technique for a wide range of online courses within higher education.

The 2016 Global Shapers Survey of 25,000 young people from across the world found that 77.8% of the respondents reported having taken an online course, which begs the question, "Is online learning the future of education?" (Yu & Hu, 2016). Furthermore, Babson Survey Research Group (2015) identifies, as a result of the Survey of Online Learning, the trend of increasing distance education enrollments even in the face of declining overall higher education enrollments in the U.S. This may indicate a shift in the American higher education landscape (see also Friedman, 2017). Clearly, higher education students throughout the world are engaging in online educational settings. At many higher education institutions, an increase in demand for online courses means that more instructors may need to adapt courses that may have traditionally been taught in face-to-face contexts to the online format. Given that educational research has routinely documented challenges of connecting students and faculty in the online classroom, as educators we must continue to strive to refine our instructional strategies to enhance online learning environments.

Combined with the ever-increasing online learning environment is the buzz phrase of "millennial learners" and the perception that in order to teach this group, teaching strategies must be modified in ways to hold their attention spans (Sanchez, 2016). Furthermore, members of the millennial generation have been noted to utilize video content (Bazilian, 2017). Not all higher education students obviously fall into this mindset, but it is clear that as we live in a digital age of snapchat, tweets, and concise hashtags, we must recognize and reflect on our own teaching practices and strategies to best reach students and enhance learning (Villena-Alvarez, 2016). Thus, we wanted to explore our idea of #lessismore with regard to increasing teacher immediacy with using concise videos in online courses.

At our university, we were part of a semester-long interdisciplinary workshop to improve our online courses—Mass Media and Society and Communication Theory—based on research-informed best practices in online pedagogy. Mass Media and Society is a lower division general education course that enrolls students from all majors (not just Communication) to explore the role of media in shaping society and can be seen broadly as a media literacy class. Communication Theory is an introductory upper-division course in Communication that serves primarily as a way for Communication majors to explore the guiding theories across the field of Communication (though the class is also an elective for several other campus majors). A common theme discussed by faculty from across campus during the semester-long workshop was not feeling as immediate or present with students as compared to face-to-face courses. Additionally, students we had taught in previous face-to-face courses noted that they felt less connected with us (or less immediacy) in the online courses than in face-to-face classes. Thus, as an outgrowth of the semester-long workshop, we both incorporated various forms of audio and video feedback into our online courses and surveyed students about their reactions to, preferences for, and the impacts on immediacy of that digital content. While these two courses are in Communication by discipline, the strategies employed can be applied across higher education online classes because the techniques used are not specific to the field of Communication. This article extends previous theorizing in instructional immediacy in online teaching by operationalizing and measuring the perceived impacts of audio and video content on student perceptions of immediacy. This allows us to offer practical advice to help instructors translate instructional immediacy theorizing into pedagogical practice.

Theoretical Framework

The guiding problem this instructional strategy is attempting to solve is understanding how to enhance a connection between instructors and students in an online learning environment. Furthermore, when solving this problem, how frequently does an instructor need to use an instructional strategy to see positive results by students? The notion of "a connection" has been theorized and understood by such concepts like teacher immediacy and social presence. Within the discipline of Communication, teaching immediacy has been characterized as the communication behaviors that reduce the distance (social, physical, and/or psychological) between teachers and students (Andersen, 1979). Teaching behaviors that enhance closeness can be nonverbal (e.g., direct eye contact, facial expressions, or movement) or verbal (asking questions, inclusive language, personal examples, or humor, for example) (Schutt, Allen, & Laumakis, 2009). Research has generally suggested that instructors who have greater immediacy behaviors will lead to greater success and satisfaction in the classroom while creating "an environment where student motivation, engagement, and learning can flourish" (Mazer & Stowe, 2016, p. 23; see also Christophel, 1990; Mazer, 2013; Plax, Kearney, McCroskey, & Richmond, 1986; Witt, Wheeless, & Allen, 2004).

Instructor immediacy is harder to accomplish while teaching in an online course (see early discussion LaRose & Whitten, 2000). Early research investigated distance education and noted that perceived teacher immediacy was significantly higher for a live (face-to-face) classroom when compared to a distance education setting (Carrell & Menzel, 2001; see also Freitas, Myers, & Avtgis, 1998; Hackman & Walker, 1990). While immediacy is more challenging to accomplish in a non-face-to-face course, studies investigating online courses are consistent with traditional face-to-face courses in reinforcing the influential role of instructor immediacy in establishing a conducive online learning climate (Baker, 2004; see also Arbaugh, 2010; Schutt et al., 2009; Umphrey, Wickersham, & Sherblom, 2008).

Social presence can be understood as a subset, but closely related to teacher immediacy, as Short, Williams, and Christie (1976) initially theorized that a critical factor of a communication medium is the social presence that it can convey. This can be interpreted as "the degree to which a person is perceived as 'real' in mediated communication" (Richardson & Swan, 2003, p. 3). While research on online settings has shown social presence can be established in a text-based medium (Gunawardena, 1995), it can more easily be established with vocal cues and the use of audio (Ice, Curtis, Phillips, Wells, 2007; Tu & McIssac, 2002). With the development of technology in online classes,

the use of video, which allows for visual cues, has been reported to make an instructor feel even more "real" and present to students because a student can see and hear the instructor (Borup, West, Thomas, & Graham, 2014; Clark, Strudler, & Grove, 2015; Han, 2013; Miller & Redman, 2010; Seckman, 2018). Research has generally suggested that greater social presence of an instructor to be related to increased affect for the instructor and course, as well as increased student satisfaction when applied to online learning environments (Dixson, Greenwell, Rogers-Stacy, Weister, & Lauer, 2017; Draus, Curran, & Trempus, 2014; Kehrwald, 2008; Richardson & Swan, 2003). Thus, social presence of an instructor can be enhanced by selecting a range of appropriate communication media like text, audio, or video in online classes to have potential benefits for the online learning environment (Thomas, West, & Borup, 2017).

Strategies researched to improve immediacy in online settings have focused on techniques like students providing feedback to students in online discussions (Conaway, Easton, & Schmidt, 2005) and instructor use of mini audio presentations in online discussions (Dringus, Snyder, & Terrell, 2010). Research has also looked at the impact of instructor generated video content in online settings through the theoretical lens of social presence. Draus and colleagues (2014) found that overall satisfaction with the course and student engagement (measured by the amount and depth of discussion posts) with the course increased, but most of this perceived value of instructor-generated video content was connected to the weekly 45-55 minute video lectures that replaced the viewing of the PowerPoint slideshow by students. Research on the longer video lecture format in online settings has noted the value in potentially increasing social presence, but it also noted some limitations with the instructor's face being reported as distracting and suggestions for periodical omission (Kizilcec, Bailenson, & Gomez, 2015; Lyons, Reysen, & Pierce, 2012). This particular study is not focused on the longer lecture format, but other research has started to unpack the various video lecture types of lecture capture, voice over, and picture and picture (Chen & Wu, 2015).

We were interested to further investigate the various types (shorter in length and not lecture format) of videos that instructors can use to increase immediacy and presence of the instructor. While not using the exact theoretical lens, Glazier (2016) conceptualized building rapport with online students by using strategies of emailing each student a personal email reminder of assignments due each week, weekly video updates every week, and providing extensive personal feedback on assignments in order to measure final course grade and retention. It was found that employing these

three rapport-building teaching techniques did lower the number of online students who earned a D or F and lessened course withdrawals; however, it was not possible to tease out which of these strategies and the frequency contributed to such success. Broadly, the use of visual-audio images in online courses by an instructor have been noted to enhance the social presence (direct immediacy) of the instructor even though it was found that courses were less likely to frequently use visual-audio (Dixson et al., 2017). Thus, further research needs to explore this instructional strategy of using video in online courses, with particular attention to frequency of use, through the lens of building teacher immediacy and social presence. Also within the context of our current digital age, more instructional strategies should incorporate tools that address how students utilize technology. This study addresses those gaps by providing a more explicit look at translating instructional immediacy theorizing into discrete practice using audio and video in the online classroom.

Process

Both instructors incorporated video instructional techniques (including video announcements and video feedback on assignments) in order to determine if those tools could foster a sense of increased immediacy and presence in an online course. The techniques of incorporating and measuring those audio and video instructional techniques varied slightly to best fit the learning outcomes of the respective courses. In the Mass Media and Society course, the instructor sent a weekly announcement every Monday to provide an overview to note upcoming assignments, highlight key mistakes past students have done with the assignment, and give a concise general course recap. Periodically, instead of the instructor sending this announcement in written form only, the announcement took the form of a short video (roughly 3 minutes in length). The instructor was interested in how the students responded to the addition of the video to increase instructor presence and the frequency in which students wanted to receive such messages. In Communication Theory the instructor experimented with sending two forms of video

assignment feedback. First, the instructor sent individual-level video (using screen capture technology) feedback to students on their proposal assignment for the major end-of-class paper. The instructor also sent general video feedback to the entire class after each major written assignment in the course (4 assignments total) highlighting general areas of strength and areas for improvement.

Surveys were completed to measure student feedback for each strategy (See Appendices A and B). Surveys were conducted for the online Mass Media and Society course in Fall 2013 (19 completed) and Spring 2014 (16 completed). Surveys were conducted for the online Communication and Theory course in Fall 2013 (26 completed). These surveys were analyzed to help us better understand how these video tools affect perceived instructor immediacy in the classroom and frequency of such instructional strategies. Though the forms of video feedback and precise methods of assessment varied in ways fitting for each individual class, we were struck by similar patterns in the findings demonstrated by the evidence and report those findings below as they may be relevant to teaching online classes generally.

Results

Mass Media and Society

Most of the respondents had taken multiple online courses with 58% reporting 6 or more classes and 21% reporting 4 or more classes. Students found the use of the weekly announcements in Mass Media and Society to increase the immediacy of the instructor were strong with 52% strongly agreeing and 36% agreeing with use of the video helping to increase the presence of the instructor. When students were asked how often they wanted to see video announcements, they responded that adding a video every week (18%) to the written announcement was not ideal. Rather, adding a video roughly ¾ of the weeks in the semester (30%) or ½ of the weeks in the semester (30%) tied. The ideal length for the video announcement was not as clear, but the trend was toward shortening the length: 27% chose between 3 and 3 1/2 minutes, and 27% chose between 2 1/2 and 3 minutes. The majority of the remaining respondents opted for an even shorter time.

Table 1
Ideal Length of Video for a Course Announcement

3:30-4:00 minutes	12%
3:00-3:30 minutes	27%
2:30-3:00 minutes	27%
2:00-2:30 minutes	18%
1:30-2:00 minutes	15%

Comments from the open-ended questions suggest that students found value in the video use and increasing immediacy and presence. Three statements demonstrate this value:

- Professors are more present through the online video announcement (which I love!) as well as through email/Canvas message discussions. It was always great to know I would get an answer when I emailed/messaged.
- I do think that videos help connect with instructors. In a way, it helps you see how they are thinking, and how they are wanting something to sound, especially in papers.
- I really enjoyed the lecture/update videos. It established a connection between the Professor and myself, unlike other online classes I have had where I never really see or hear the professor. Not knowing who is assigning your work can be bad for motivation. One other way for an online professor to be more present is with timely responses to student questions. I feel you did a great job of doing that.

The videos combined with timely feedback seemed to provide greater opportunity for increased immediacy and presence and was a common theme found in the survey results. Two statements best exemplify this finding:

- Recorded videos are fantastic. I think the students feel that there is more interaction with the professor that way. I also appreciate the feedback from the instructor after tests and/or assignments. The feedback let's (sic) the student know the professor is active in the course.
- I liked the once a week videos; it helped me get to know my instructor. We got to see her mannorisomes [sic] and hear how she talked. It was a neat addition. Another thing that is important to me is for instructors to have fast feedback to communications between the students and the teachers.

While the survey did not specifically ask about feedback in an online course, it was found as helpful along with video use and supports other research findings that recognize prompt and timely feedback as "highly valued by learners and seen as a critical factor to consider in the design of e-learning and online learning" (Lister, 2014, p. 678).

Communication Theory

Though the longer survey asked about many teaching tools that may affect instructor immediacy and motivation, this particular intervention was especially interested in the use of video in the online class. On a scale of 1 = Not at All Immediate and 5 = Very Immediate, 68.1% of students in Communication Theory reported that instructor recorded videos directed at the entire online class make an instructor seem either immediate or very immediate. On the same scale, 53.4% of students in Communication Theory reported that instructor recorded videos directed individually to the student makes the instructor seem either immediate or very immediate.

Similarly, on a scale of 1 = Not at All Motivated and 5 = Very Motivated, 69.9% of students in Communication Theory reported that instructor recorded videos directed at the entire online class make a student motivated or very motivated in their online course. On the same scale, 58.4% of students in Communication Theory reported that instructor recorded videos directed individually to the student make a student motivated or very motivated in their online course. When asked about frequency, however, on a scale of 1 = Never to 5 = Daily, students reported a mean score of 2.88 for desired frequency of videos directed at the entire class and a mean score of 2.08 for videos directed at the individual student.

In general, qualitative comments indicated that students appreciated video communication at both the individual and class level from the instructor. For instance, "The more the instructor uses teaching tools like video to communicate with the student, the more motivated I will be because I feel they actually care about my work." Another student said, "It's difficult to stay motivated in an online class, so having an instructor who is more involved, who sends videos, is helpful in keeping students motivated."

Yet, qualitative comments do indicate that if an instructor used too many videos, it may decrease student immediacy and motivation. For example, one student wrote, "Daily video messages without a real purpose would be distracting, not motivating." Similarly, another student said, "I would find incessant use of video messages to be an impedance on my study habits."

Discussion and Recommendations

Teaching Communication courses or any course in an online setting can create challenges for fostering teacher immediacy and presence. This article extends previous theorizing in instructional immediacy in online teaching by operationalizing and measuring the perceived impacts of audio and video content on student perceptions of

immediacy. This allows us to offer practical advice for audio and video use to help instructors translate instructional immediacy theorizing into pedagogical practice. We found using concise videos in multiple ways built online immediacy in positive ways. Students reported, as a whole, that they found video recordings to increase their sense of instructor immediacy and motivation in the online classroom. Interestingly, when asked to compare videos directed at the entire class (e.g., general assignment videos) with videos directed at the individual student (e.g., individual-level assignment feedback videos), the videos directed at the entire class in a general way were rated more positively both in terms of instructor immediacy and student motivation. This means that instructors can make a positive difference in perceived instructor immediacy through general entire-class directed videos and that it may not be necessary to film individual-level student feedback videos to build immediacy.

Similarly, though students generally discussed the positive impacts of instructor video announcements or video feedback, students also articulated that too many videos could actually harm their motivation in an online class. The practical take-away is that videos (even shorter in length, roughly 3 minutes) may have more impact on immediacy and motivation when used less frequently (e.g. once a week or a few times a semester). This supports our notion that indeed less can be more when trying to increase instructor presence in online settings.

Previous research had not fully made clear how students valued, or if they even listened to, the announcements or assignment feedback and what role students specifically saw those audio and video techniques playing in fostering instructor immediacy in online classrooms. As a result of our data, it is clear that students found value in these relatively rarely used, concise video techniques. For example, one student noted, "The weekly announcements were VERY helpful. Not all online use that technique and I felt this helped me to keep track of what was going on, just like attending an on campus class."

Our recommendation for instructors based on this application and extension of previous theorizing in online instructor immediacy is that when teaching online courses, reflect on ways to use videos in concise and thoughtful ways. There is clear evidence that instructional techniques must be used in thoughtful ways to add a fuller sense of instructor immediacy in online classes. This study confirmed the results of other studies that instructor use of video capture in the form of announcements and/or assignment feedback can foster that connection. Yet, you may not need to spend a huge amount of time preparing lengthy videos for each individual student, but instead present shorter (roughly 3 minute) recaps of main themes for assignment feedback and post the video to the entire class. It might also be helpful when teaching a face-to-face course to post on the learning management system (Canvas or Blackboard, for example) a short video recap of assignment feedback that students could go back and watch in case they missed class or want to watch after class to reflect more on how to improve. While we examined primarily the use of these shorter videos to build immediacy and presence in an online setting, there could be other educational value in shorter videos.

It can seem overwhelming to introduce new teaching strategies as an instructor when there are already demands to keep up with the status quo of course preparations for multiple courses each semester. The results of this study extend previous research by demonstrating that instructional immediacy impact can be made with small changes like adding a concise weekly announcement video periodically throughout the semester. Furthermore, if an instructor does want to try a new use of video, then the commitment may not need to be as timely as one might instinctively think to attempt a new strategy and see results. We encourage instructors to reflect more on the emerging digital landscape of concise hashtags and tweets and the impact that it can have on the overall learning environment. We do, of course, caution against going so concise that there is no substance or content remaining, but we cannot ignore that apparently #lessismore in particular circumstances.

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Acknowledgements

Appendix A
Survey for Mass Media and Society

1. Including this course, how many online courses have you taken?
   A. 1
   B. 2 or 3
   C. 4 or 5
   D. 6 or more
2. Answer the following in response to the statement below:
   The once weekly announcements (repeated each Monday) helped to organize the course.
   A. Strongly Agree
   B. Agree
   C. Neutral
   D. Disagree
   E. Strongly Disagree
3. Answer the following in response to the statement below:
   The announcements with the addition of the instructor speaking in a video helped to improve understanding of course material.
   A. Strongly Agree
   B. Agree
   C. Neutral
   D. Disagree
   E. Strongly Disagree
4. Answer the following in response to the statement below:
   The announcements with the addition of the instructor speaking in a video helped to increase the presence of the instructor.
   A. Strongly Agree
   B. Agree
   C. Neutral
   D. Disagree
   E. Strongly Disagree
5. Announcements with a video were not used every week this semester. How frequent would you prefer the inclusion of videos in the course announcements?
   A. Every week (15 times)
   B. Roughly ¾ of the semester (11 or 12 times)
   C. Roughly ½ the semester (7 or times)
   D. Roughly ¼ of the semester (3 or 4 times)
   E. Never
6. Videos can vary in length for course announcements. What is the ideal length of a video with the instructor speaking if the purpose is to provide an overview of course announcements?
   A. between 3:30-4:00 min
   B. between 3:00-3:30 min
   C. between 2:30-3:00 min
   D. between 2:00-2:30 min
   E. between 1:30-2:00 min
7. Videos can vary in length for a more formal lecture of course material. What is the ideal length of a video with the instructor speaking if the purpose is to provide a lecture on course material?
   A. 15:00-20:00 minutes
   B. 10:00-15:00 minutes
   C. 5:00-10:00 minutes
   D. 0-5:00 minutes
8. In an online course, what do you think is the best way for an instructor to increase their presence? How do you feel an instructor is more present and available especially since you do not meet face-to-face?
9. Feel free to provide any other feedback about online courses. Thanks!

Appendix B
Survey for Communication Theory

NOTE - Data for this project were gathered from a larger online survey. Below are selected questions relevant to this study

Demographic Questions - Please answer the following general demographic questions
1. What is your age?
2. What is your gender?
   A. Male
   B. Female
   C. Prefer not to Specify

3. How far do you currently live from the (X campus, blank for peer review)? (in driving time)
   A. I live on Campus
   B. Less than 30 minutes away
   C. 30 minutes to 1 hour away
   D. 1 to 2 hours away
   E. More than 2 hours away

4. What is your current registration status?
   A. Full-time student
   B. Part-time student?

5. What is your current class standing?
   A. Freshman
   B. Sophomore
   C. Junior
   D. Senior
   E. Graduate Student

6. What was your primary reason for taking this online course? Pick the one that BEST fits your reasoning
   A. Course not offered on campus/ face-to-face
   B. Distance from campus or lack of transportation
   C. Family responsibilities
   D. Work responsibilities
   E. Better fits personal schedule
   F. Other:

Opinions on teaching tools - Teaching Tools and Instructor Immediacy
Instructor immediacy is a way of saying instructor presence, personableness or approachability in an online class. In other words, does an instructor seem present, accessible and personal to you?
7. An instructor's use of the following technology makes (or would make) him/her seem _____ in an online class: Online announcements on Canvas *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*
8. An instructor's use of the following technology makes him/her seem _____ in an online class: Emails to the entire class *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*
9. An instructor's use of the following technology makes (or would make) him/her seem _____ in an online class: Emails to you as an individual (not to the entire class) *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*
10. An instructor's use of the following technology makes him/her seem _____ in an online class: Written feedback on assignments *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*

11. An instructor's use of the following technology makes (or would make) him/her seem
_____ in an online class: Discussion participation in which the INSTRUCTOR participated in or commented on the class discussion *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*

12. An instructor's use of the following technology makes (or would make) him/her seem _____ in an online class: Instructor recorded video or audio messages to the entire class *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*

13. An instructor's use of the following technology makes (or would make) him/her seem _____ in an online class: Instructor recorded video or audio messages to you individually (not to the entire class) *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*

14. An instructor's use of the following technology makes (or would make) him/her seem _____ in an online class: Synchronous meetings (you meet in "live" time -- either face-to-face or on the Phone, Skype, Adobe Connect, or other technology) *(measured on a scale of 1-5 where 1 = Not at all Immediate & 5 = Very Immediate)*

How do these teaching tools affect your motivation in the online classroom?

15. An instructor's use of the following technology makes me (or would make me)_____ in an online class: **Online announcements on Canvas** *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

16. An instructor's use of the following technology makes me (or would make me)_____ in an online class: **Emails to the entire class** *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

17. An instructor's use of the following technology makes me (or would make me)_____ in an online class: **Emails to you as an individual** (not to the entire class) *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

18. An instructor's use of the following technology makes me (or would make me) _____ in an online class: **Written feedback on assignments** *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

19. An instructor's use of the following technology makes me (or would make me) _____ in an online class: **Discussion participation in which the INSTRUCTOR participated in or commented on the class discussion** *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

20. An instructor's use of the following technology makes me (or would make me)_____ in an online class: **Instructor recorded video or audio messages to the entire class** *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

21. An instructor's use of the following technology makes me (or would make me) _____ in an online class: **Instructor recorded video or audio messages to you individually (not to the entire class)** *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

22. An instructor's use of the following technology makes me (or would make me)_____ in an online class: **Synchronous meetings** (you meet in "live" time -- either face-to-face or on the Phone, Skype, Adobe Connect, or other technology) *(measured on a scale of 1-5 where 1 = Not at all Motivated & 5 = Very Motivated)*

Frequency of Teaching Tools
For each of the following teaching tools, how frequently should they be used in an online class?

23. The following teaching tool should be used _____ in an online class: **Online announcements on Canvas** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*

24. The following teaching tool should be used _____ in an online class: **Emails to the entire class** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*

25. The following teaching tool should be used _____ in an online class**: Emails to you as an individual (not to the entire class)** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*

26. The following teaching tool should be used _____ in an online class: **Written feedback on assignments** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*

27. The following teaching tool should be used _____ in an online class: **Discussion participation in which the INSTRUCTOR participated in or commented on the class discussion** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*

28. The following teaching tool should be used _____ in an online class: **Instructor recorded video or audio messages to the entire class** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*
29. The following teaching tool should be used _____ in an online class**: Instructor recorded video or audio messages to you individually (not to the entire class)** *(measured on a scale of 1-5 where 1= Never; 3 = Weekly; 5 = Daily)*
30. The following teaching tool should be used _____ in an online class: **Synchronous meetings** (you meet in "live" time -- either face-to-face or on the Phone, Skype, Adobe Connect, or other technology)

Finishing Thoughts
31. Instructor Immediacy has been defined as an instructor's presence, personableness or approachability in an online class. What improves immediacy in an online class?
32. Is it possible for an instructor to be too immediate in an online class?
33. Is it possible for an instructor's frequent use of the teaching tools in this survey to decrease your motivation in an online class?